JUL 22 1980

I 70.22/3:980/2

Coast 662

646-T

Design

Center 8969

U.S. DEPARTMENT OF THE INTERIOR
Heritage Conservation and Recreation Service

Spring 1980

GPO 0/80

DESIGN

A publication of the Park Practice Program
The Park Practice Program is a cooperative effort of the Heritage Conservation and Recreation Service and the National Recreation and Park Association.

Chris Therral Delaporte, Director
Heritage Conservation and Recreation Service

John H. Davis, Executive Director
National Recreation and Park Association

Editorial Staff

Heritage Conservation and Recreation Service
Division of Park and Recreation Technical Services
U.S. Department of the Interior

Frank C. Goodell, Managing Editor

James A. Burnett, Editor, *Design* and *Grist*

Nancy Blauvelt, Senior Editorial Assistant

Kathleen A. Pleasant, Editorial Assistant

Donald F. Benson, Architectural
Consultant on NPS Contributions
Denver Service Center

Contractors to the Program

Maureen Palmedo, Consulting Editor, *Trends*, *Grist*, *Design*

Graphichouse, Design Consultant

District Lithography Company, Inc., Printer

The Park Practice Program began in 1956 as the result of an agreement between the National Conference of State Parks and the National Park Service, with NPS serving as the primary sponsor until 1979. The program includes: *Trends*, a quarterly publication on topics of general interest in park and recreation management and programming; *Grist*, a bimonthly publication on practical solutions to everyday problems in park and recreation operations; and *Design*, a quarterly compendium of plans for park and recreation structures which demonstrate quality design and intelligent use of materials.

Membership in the Park Practice Program includes a subscription to all three publications and selected back issues in vinyl binders with indices and all publications for the calendar year.

The initial membership fee is $80; annual renewal is $20. A separate subscription to *Design* is $50 initially, and $10 on renewal. Subscription applications and fees, and membership inquiries should be sent *only* to: National Recreation and Park Association, 1601 N. Kent Street, Arlington, Va. 22209.

The information presented in any of the publications of the Park Practice Program does not reflect an endorsement by the agencies sponsoring the program or the editors.

Articles, suggestions, ideas and comments are invited and should be sent to Park Practice Program, U.S. Department of the Interior, Heritage Conservation and Recreation Service, Division of Park and Recreation Technical Services, Washington, D.C. 20243.

All plans contained in *Design* are presented as guidelines and suggestions, not as blueprints for construction. Before building from any plan, be sure to consult Federal, State, and local safety and building codes. We particularly recommend your checking building plans for compliance with the National Fire Protection Association's—*NFPA No. 101, "The Life Safety Code," of 1976.*

Introduction

In springtime, parks and recreation areas prepare for their peak season as more and more people seek outdoor activity and relaxation. Accordingly, we've featured two recreation-oriented structures that should prove interesting to many readers—a tennis concession facility and a combination concession-restroom-storage facility that serves four baseball fields. The campers' service facility, from Everglades National Park, Florida, shows how good design can accommodate a number of separate elements under one roof.

You'll also find a dramatic National Park Service visitor contact station with solar collectors. To round out our selection, there's an exciting interpretive facility from an historical park and an unusual circular restroom and waiting shelter.

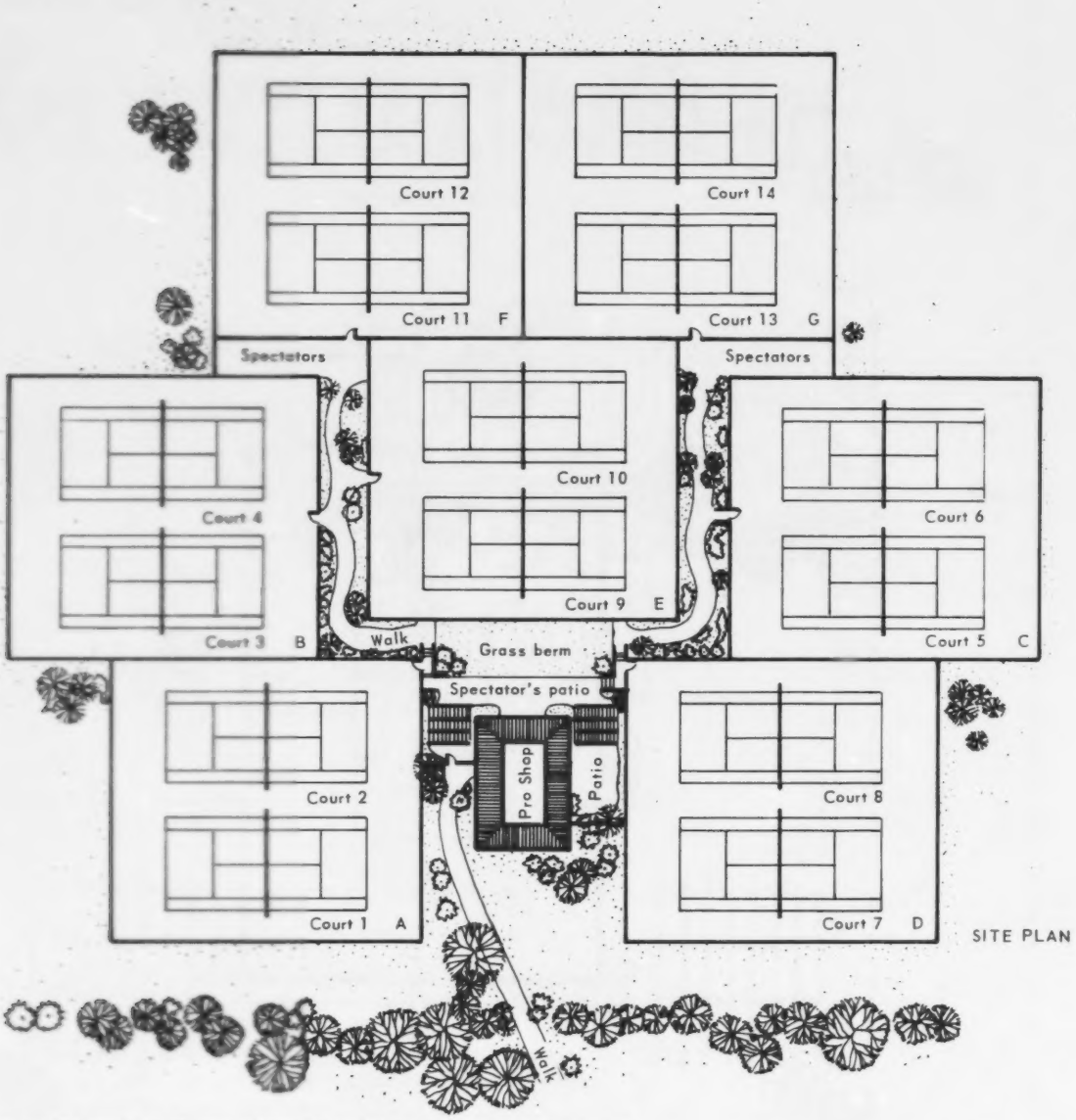
May this issue give you some good, workable ideas that can help meet your own design needs.

Chart below indicates the proper place to insert new design sheets in your DESIGN binder.

Behind Index No.	Insert New Sheet Index No.	Backed by Index No.
A-1104	A-1105	A-1106
A-1250	A-1251	A-1252
A-1252	A-1253	A-1254
R-4422	R-4423	R-4424
O-5366	O-5367	O-5368
I-6016	I-6017	I-6018
I-6018	I-6019	I-6020

HCRS

Tennis Concession



The City of Richardson, Texas, shares this design for a tennis concession service center.

The facility provides tennis players with ample locker space, toilets, and showers. In addition, there is an office and a janitor storage area, a display counter, and a sales section.

The structure opens onto a spectator's patio with two shade shelters, from which the 14 tennis courts are visible.

The architectural firm of Hatfield-Halcomb, Inc. designed this municipal tennis center.

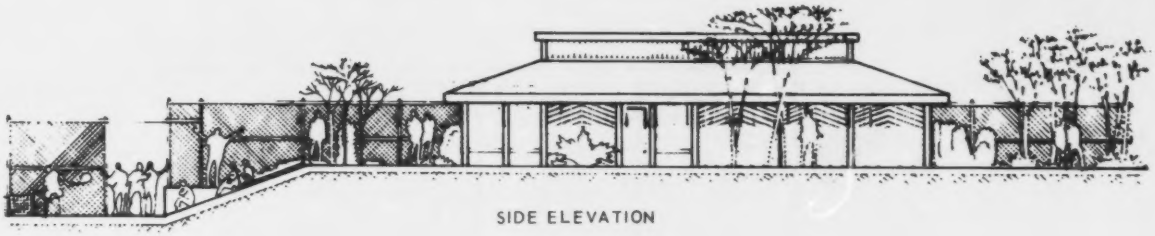
NOTE:

See DESIGN sheets R-4497, R-4498, R-4503, R-4532, R-4585 and R-4586 for plans of nets, fences and court dimensions.

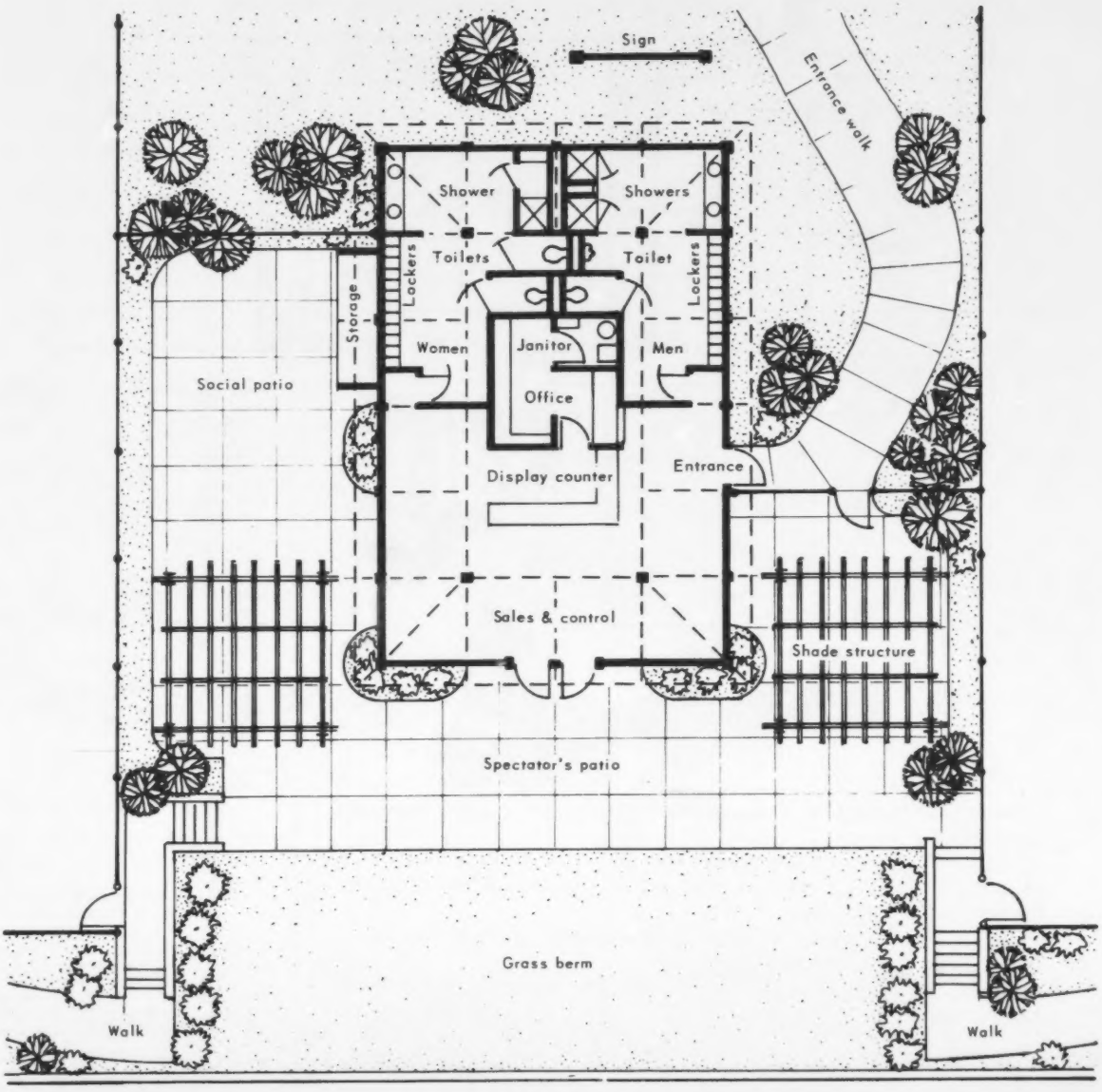
Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association

DESIGN . . . A publication of the Park Practice Program

TENNIS CONCESSION		
Index A-1105	Spring 1980	City of Richardson, Texas
	N-1444-R	

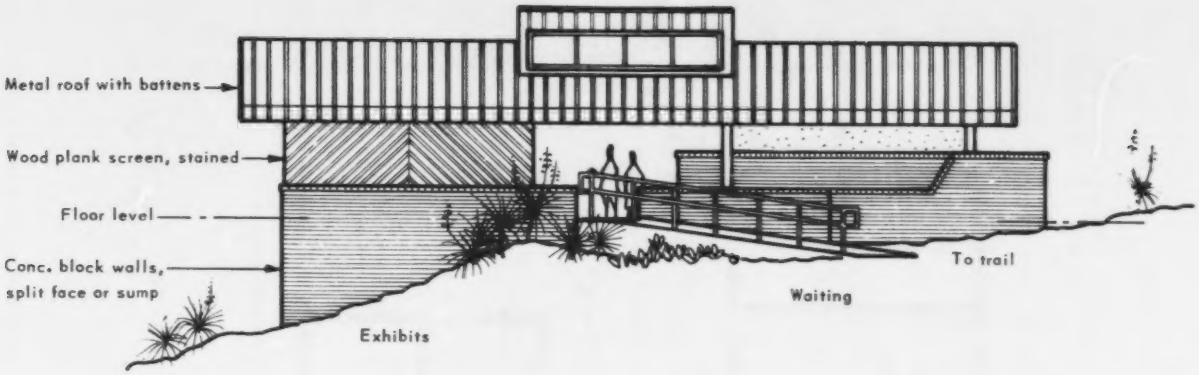


SIDE ELEVATION



FLOOR PLAN
Pro shop

Visitor Contact Station



NORTH ELEVATION

Solar collectors, dramatic design, and handsome materials lend a distinctive look to this visitor contact station at McKittrick Canyon in Guadalupe Mountains National Park in Texas.

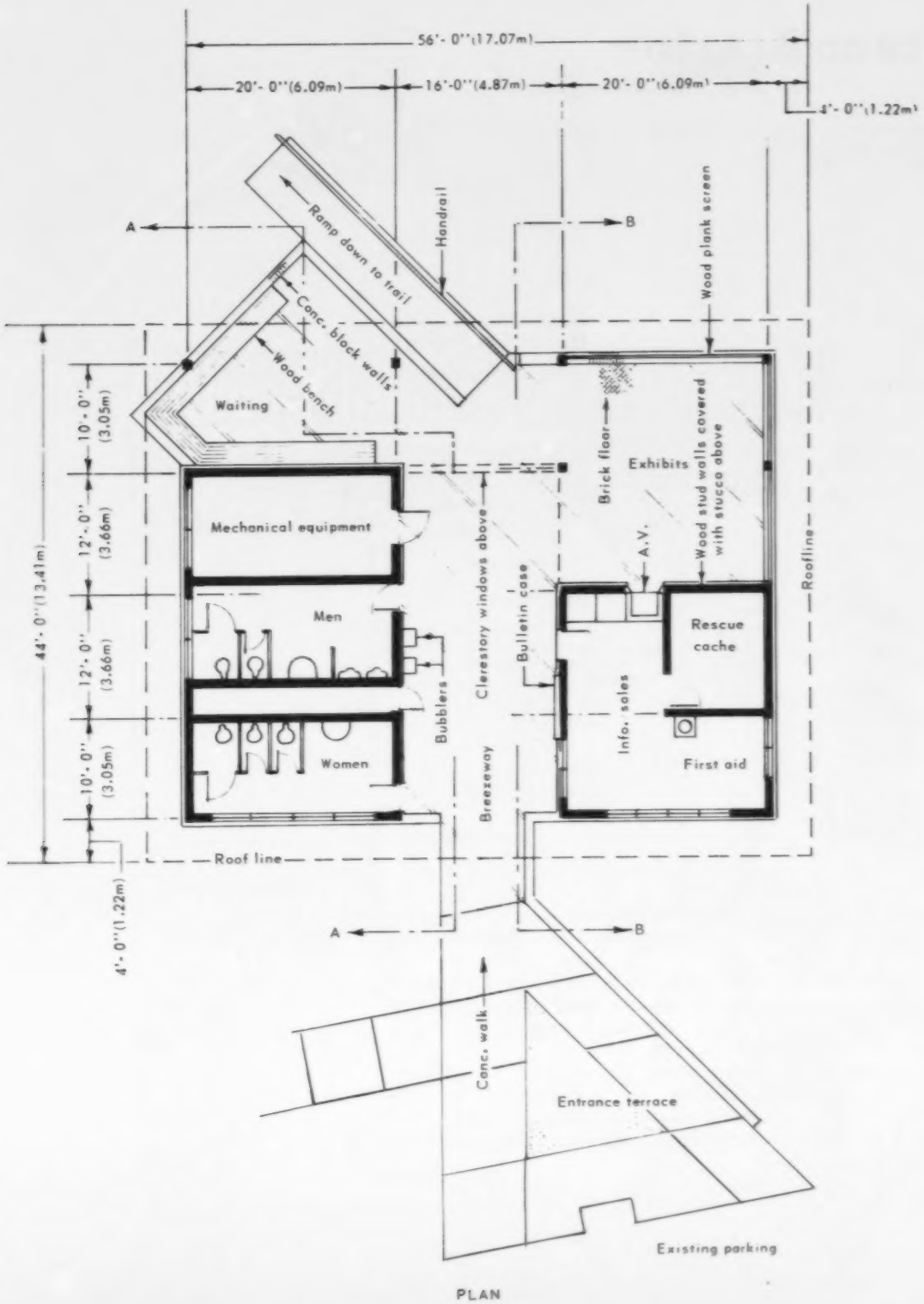
Exterior walls are stucco and sump block with brick veneer. A band of wood plank screening assures adequate ventilation and privacy. An entrance terrace leads to the central breezeway which runs through the structure to a ramp with metal rail that runs down to the trail.

Inside, on one side of the breezeway, are the restrooms, a mechanical equipment section, and a waiting area with wooden benches. On the other side are exhibits, an information/sales area, first aid station, and rescue cache.

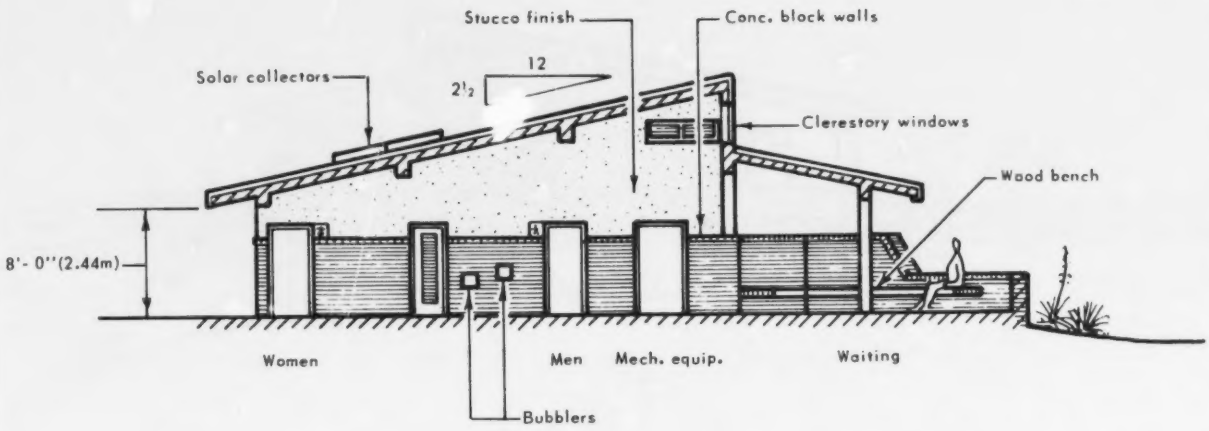
Dick Kusek, of the National Park Service's Denver Service Center, designed this interesting contact station.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of the Park Practice Program

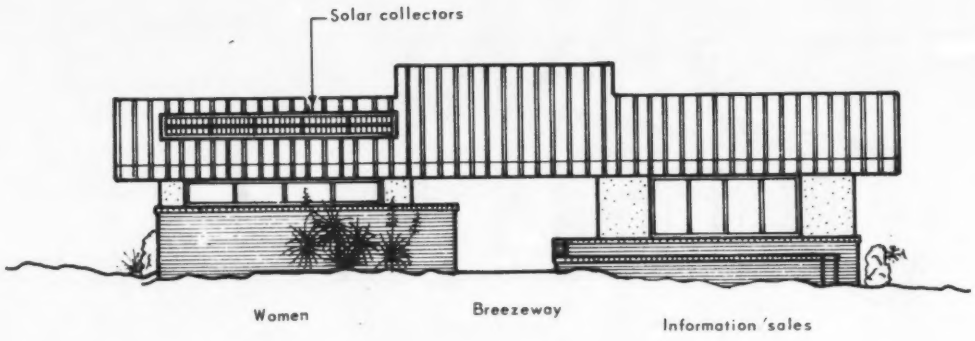
VISITOR CONTACT STATION		
Index A-1251	Spring 1980	Dick Kusek
	S-1569-A	DSC - NPS - USDI


56'- 0"(17.07m)
20'- 0"(6.09m)
16'-0"(4.87m)
20'- 0"(6.09m)
4'- 0"(1.22m)
Ramp down to trail
Handrail
Wood plank screen
Conc. block walls
Wood bench
Waiting
Brick floor
Exhibits
Wood stud walls covered with stucco above
Mechanical equipment
Men
Women
Bubblers
Clerestory windows above
Bulletin case
A.V.
Rescue cache
Info. sales
First aid
Roofline
Breezeway
Roof line
44'- 0"(13.41m)
10'- 0"(3.05m)
12'- 0"(3.66m)
12'- 0"(3.66m)
10'- 0"(3.05m)
4'- 0"(1.22m)
A
B
Conc. walk
Entrance terrace
Existing parking

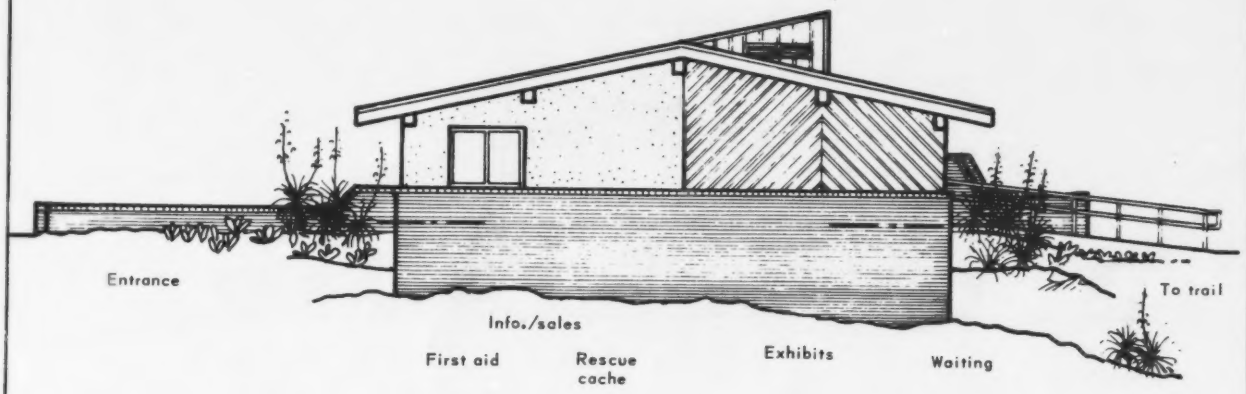
PLAN



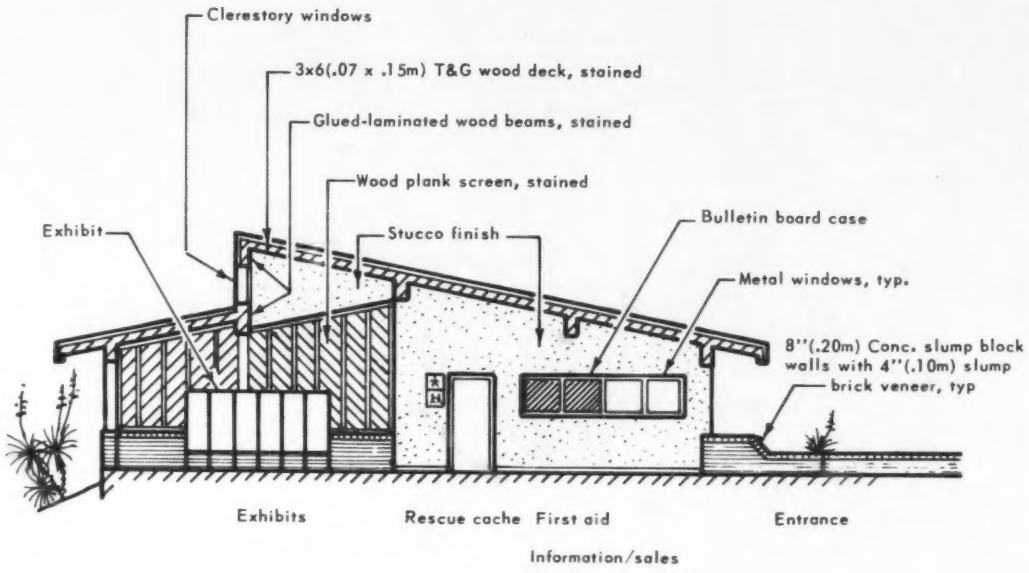
SECTION A - A



SOUTH ELEVATION

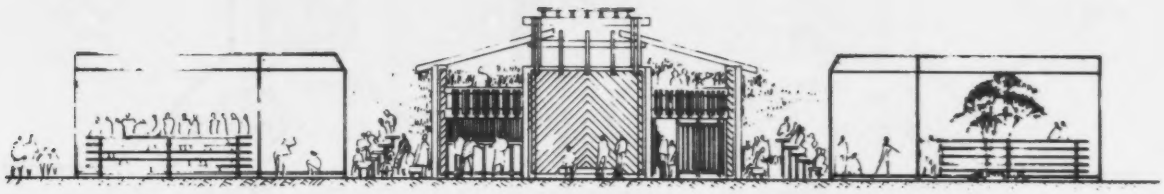


EAST ELEVATION

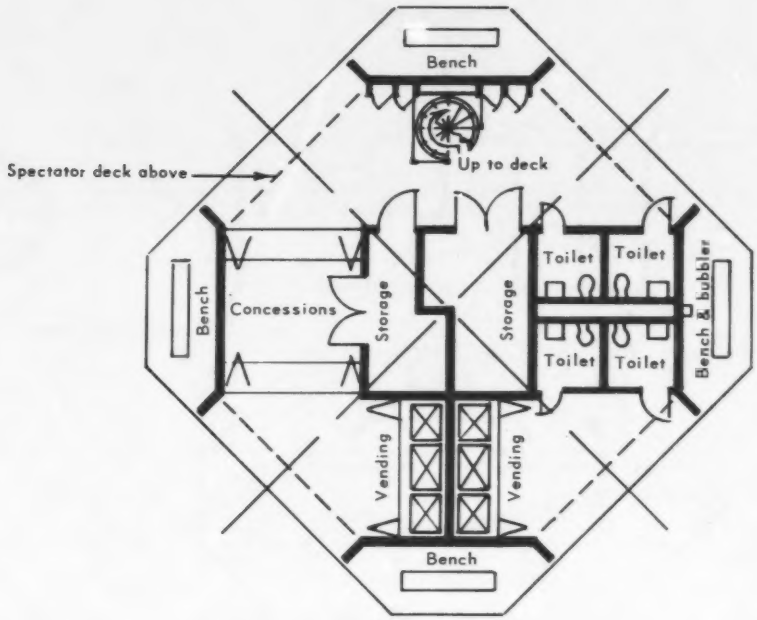


SECTION B - B

Concession-
Restroom-Storage Facility



ELEVATION



PLAN

Here's another good design from the City of Richardson, Texas, Parks and Recreation Department. It's a combination concession-restroom-storage facility, designed by the architectural firm of Hatfield-Halcomb, Inc.

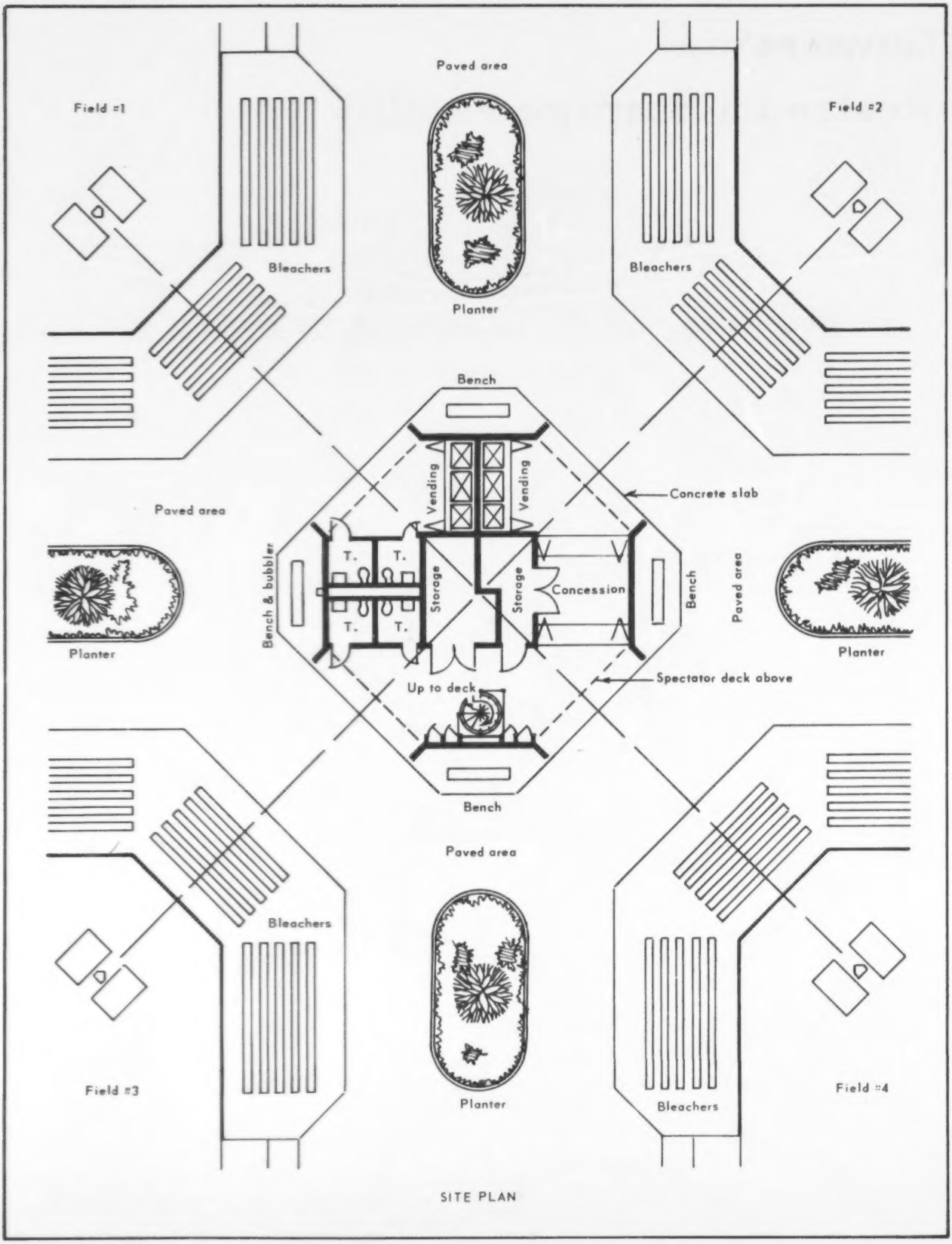
An unusual feature of this design is its clever siting—the facility has been positioned strategically to serve four adjacent baseball fields. Other interesting features include outside benches at ground level and four raised spectator decks which ring the structure and offer a good view of the four playing fields.

NOTE:

See DESIGN sheets R-4499, R-4500, R-4501, R-4502, R-4516, R-4595 and R-4596 for plans of baseball fields and backstops. Bleachers should be designed and installed by professionals so they are safe.

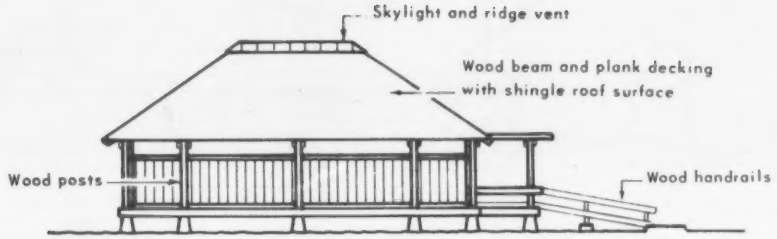
Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of the Park Practice Program

CONCESSION-RESTROOM-STORAGE FACILITY		Contributed by
Index R-4423	Spring 1980	City of Richardson, Texas
	Control N-1444-R	

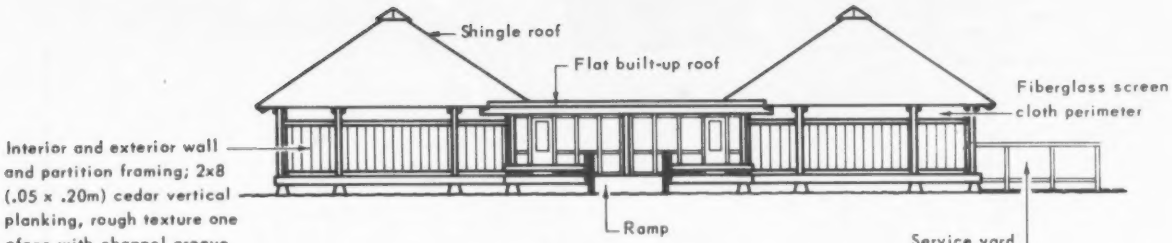

Field #1
Paved area
Field #2
Bleachers
Planter
Bleachers
Bench
Vending
Vending
Concrete slab
Paved area
T.
T.
T.
T.
Storage
Storage
Concession
Bench & bubbler
Bench
Paved area
Planter
Planter
Up to deck
Spectator deck above
Bench
Paved area
Bleachers
Planter
Bleachers
Field #3
Field #4

SITE PLAN

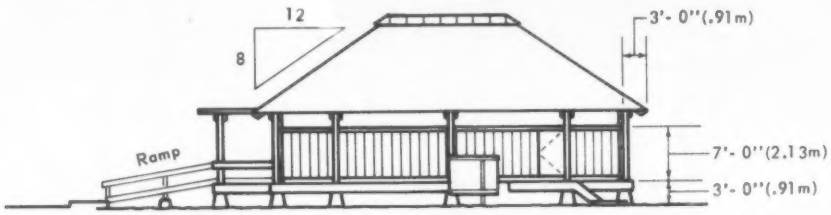
Campers' Service Facility



SOUTHWEST ELEVATION


Shingle roof
Flat built-up roof
Fiberglass screen cloth perimeter
Interior and exterior wall and partition framing; 2x8 (.05 x .20m) cedar vertical planking, rough texture one aface with channel groove bullnose pattern both sides.
Ramp
Service yard wall screen

NORTHWEST ELEVATION



NORTHEAST ELEVATION

Handsome cedar wall planking, both inside and out, plus skylights topping two shingled peaks connected by a flat roof area, add a distinctive look to this versatile campers' service facility at Everglades National Park in Florida.

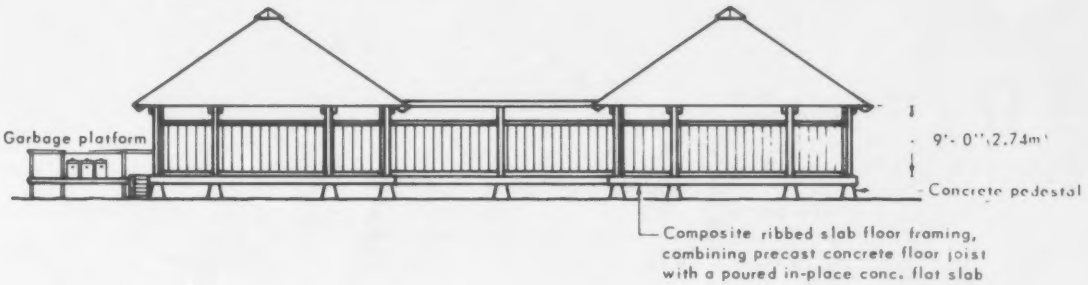
The design specifies floor joists of precast concrete which support a poured-in-place concrete slab. At the top of the wall, a band of screening provides ventilation as well as privacy. Entry ramp with wooden handrail eases access for bicycles, wheelchairs, and elderly visitors.

Inside, the multi-purpose building contains ample space for shower and toilet facilities, washer and dryer units, ironing boards, hair dryers, a bicycle rental section, and camper sales area.

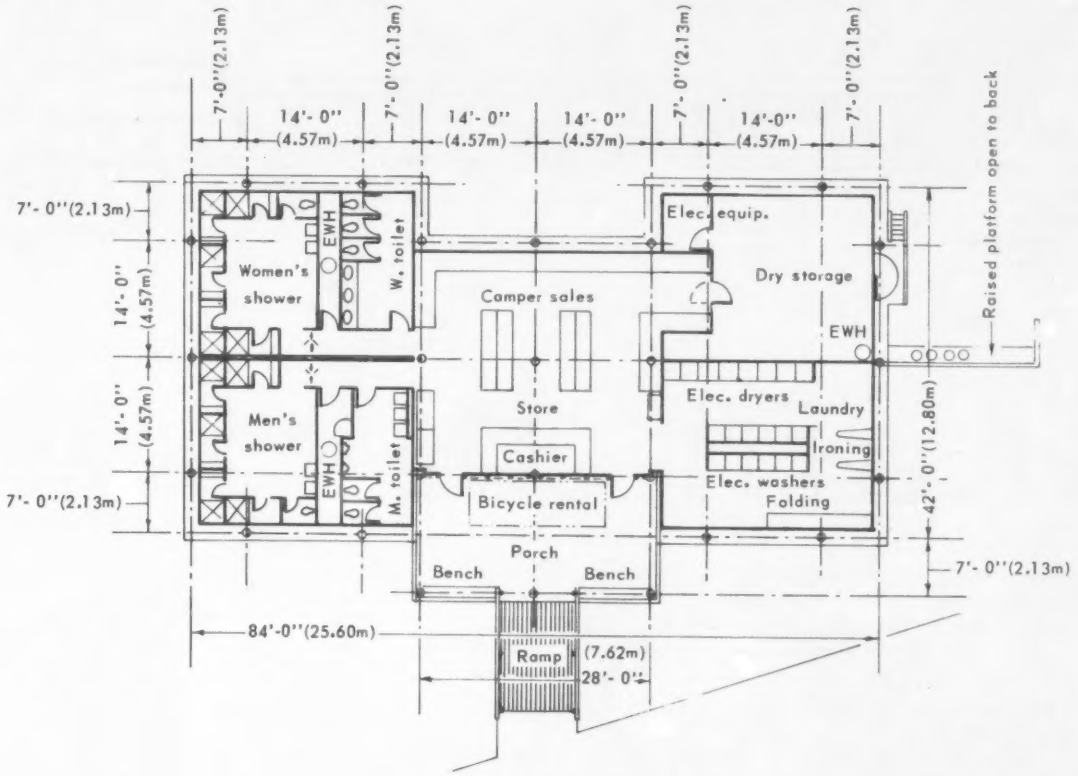
This design, by Everglades Park Company, Inc., and Severud, Knight, Boerema, Architects, would adapt well to a number of park and recreation sites.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of the Park Practice Program

CAMPERS' SERVICE FACILITY		Contributed by:
Index: **0-5367**	Spring 1980	Denver Service Center
	Contract: S-1503-O	NPS - USDI

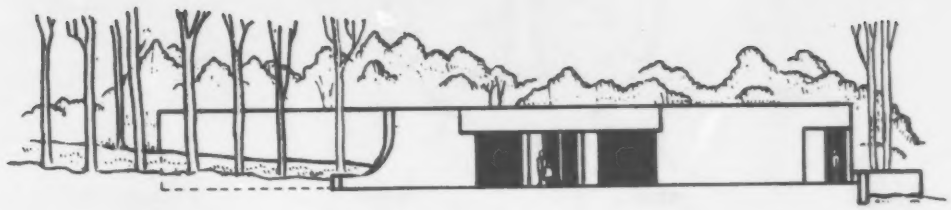

Garbage platform
9'- 0" (2.74m)
Concrete pedestal
Composite ribbed slab floor framing, combining precast concrete floor joist with a poured in-place conc. flat slab

SOUTHEAST ELEVATION

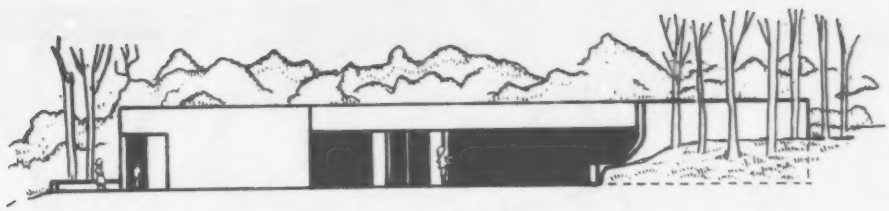


FLOOR PLAN

Interpretive Facility from an Historic Park



FRONT ELEVATION A



REAR ELEVATION B

This interpretive facility plan from Morristown National Historical Park in New Jersey should provide readers with many exciting design ideas.

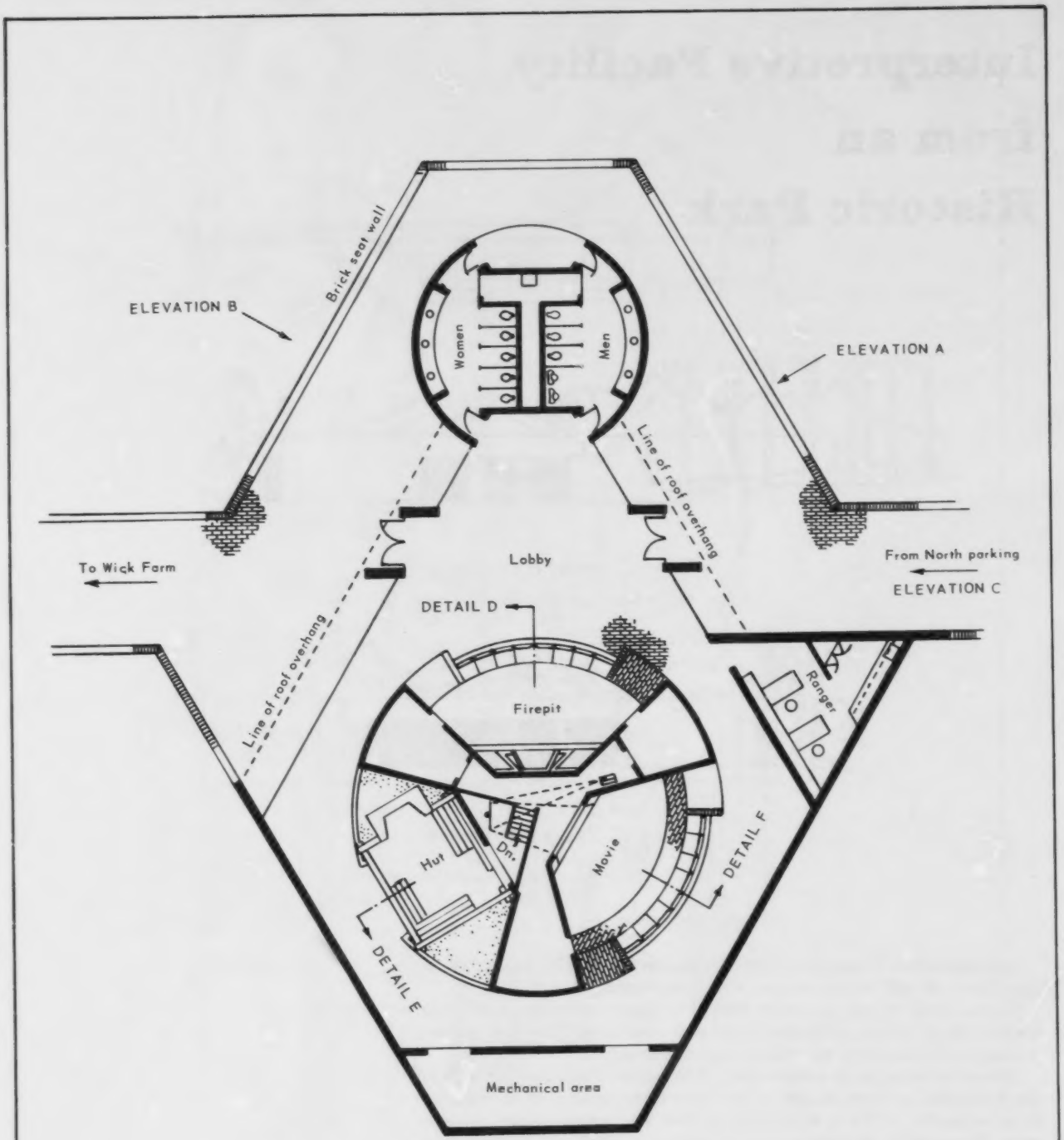
Exterior walls of this unusually shaped structure are brick veneer over concrete block. Interior walls are covered with commercial grade wool carpet. A suspended accoustical tile ceiling helps muffle noise.

A brick walkway leads visitors into a lobby from which they can stop at the restrooms, a ranger station, or the interpretive section, or continue directly along the walkway to Wick Farm. The interpretive section contains three distinct areas, arranged in a circular design—a firepit with an orientation mural on the wall, a theater with bench seating, and a reconstructed hut. Across the lobby, the restroom is built in a similar circular design.

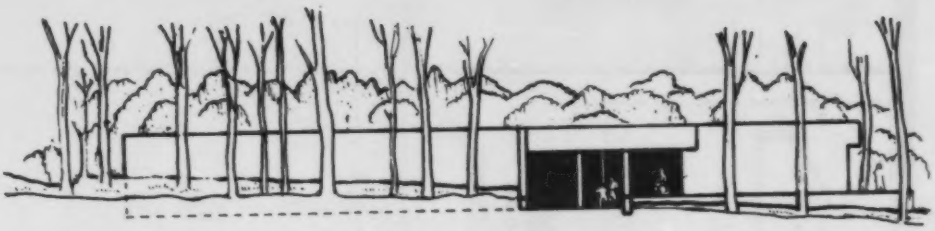
The National Park Service's Denver Service Center designed this interesting structure.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of the Park Practice Program

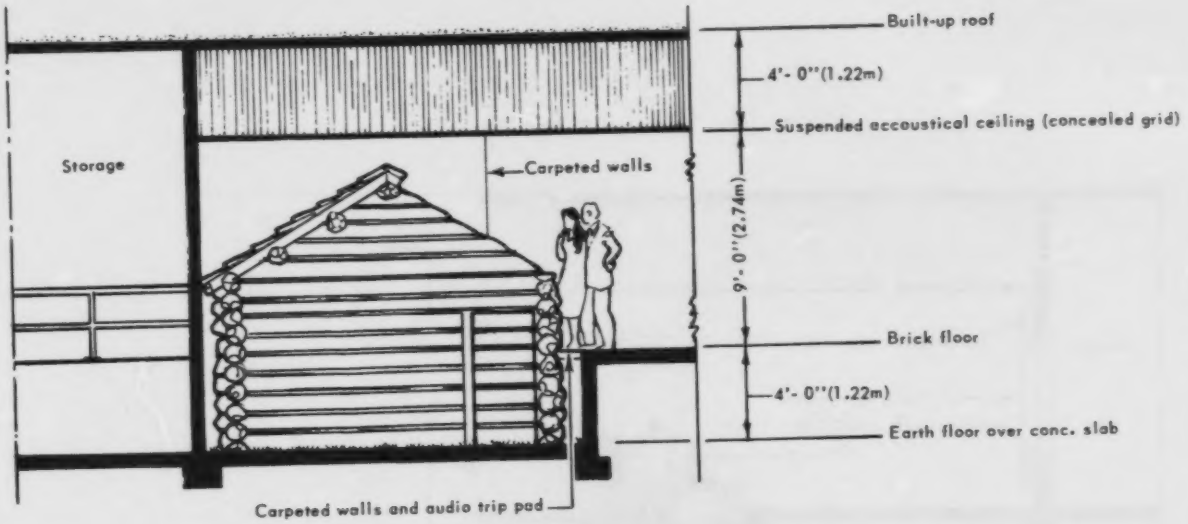
INTERPRETIVE FACILITY		Contributed by
Index **I-6017**	Spring 1980	Bob A. Lopenske
	Control S-1499-1	DSC - NPS - USDI


ELEVATION B
Brick seat wall
Women
Men
ELEVATION A
Line of roof overhang
To Wick Farm
Lobby
From North parking
ELEVATION C
DETAIL D
Line of roof overhang
Ranger
Firepit
Hut
Dn.
Movie
DETAIL F
DETAIL E
Mechanical area

FLOOR PLAN

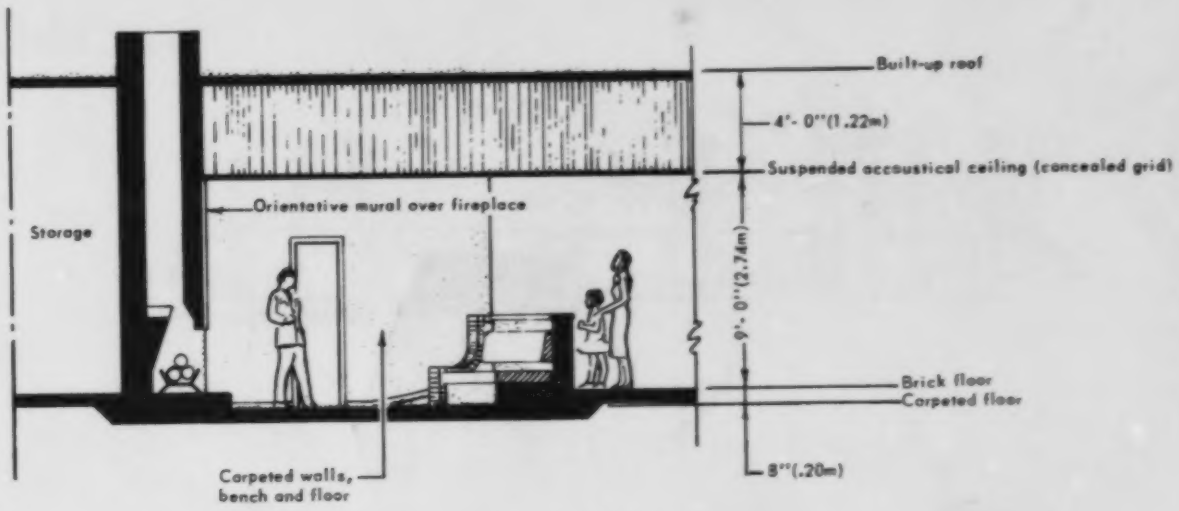


APPROACH ELEVATION C



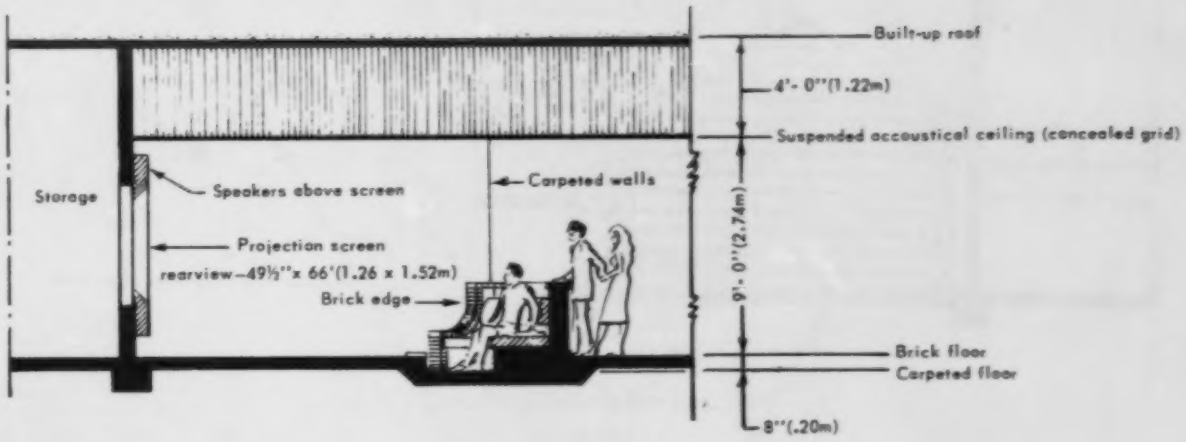
DETAIL E

RECONSTRUCTED HUT



DETAIL D

ORIENTATION FIREPIT



DETAIL F

REAR-SCREEN MOVIE

ROCKY MOUNTAIN NATIONAL PARK

DESIGN

A publication of Park Practice
Park Practice is a cooperative effort,
of the Heritage Conservation and Recreation Service
and the National Recreation and Park Association.

Chris T. Delaporte, Director
Heritage Conservation and Recreation Service

John H. Davis, Executive Director
National Recreation and Park Association

Editorial Staff
Heritage Conservation and Recreation Service
Division of Park and Recreation Technical Services
U.S. Department of the Interior

James A. Burnett, Editor, *Design* and *Grist*

Kathleen A. Pleasant, Editor, *Trends*

Contractors to the Program

Maureen Palmedo and Associates, Consulting Editors,
Trends, Grist, Design

Park Practice includes: *Trends*, a quarterly publication on topics of general interest in park and recreation management and programming; *Grist*, a bimonthly publication on practical solutions to everyday problems in park and recreation operations; and *Design*, a quarterly compendium of plans for park and recreation structures which demonstrate quality design and intelligent use of materials.

The information presented in any of the publications of Park Practice does not reflect an endorsement by the agencies sponsoring the program or the editors.

Articles, suggestions, ideas and comments are invited and should be sent to Park Practice, U.S. Department of the Interior, Heritage Conservation and Recreation Service, Division of Park and Recreation Technical Services, Washington, D.C. 20243.

HCRS

U.S. Department of the Interior
Heritage Conservation and Recreation Service

For the peak summer season, we've selected designs that will give you maximum impact for your investment of time, effort, and money.

A dramatic roof adds new interest and excitement to a simple picnic shelter. A marvelous timber play fort will provide untold hours of enjoyment for children of all ages. And, for the increasingly hard-pressed park and recreation area manager whose responsibilities grow more complex every day, there's an invaluable multiple use and resource reference system that will show the *whole* park picture at a glance.

We hope this summer issue of *DESIGN* gives you new ideas and new inspiration for better serving your public.

Chart below indicates the place to insert new design sheets in your DESIGN binder.

Behind Index No.	Insert New Sheet Index No.	Backed by Index No.
A-1356	A-1357	A-1358
A-1358	A-1359	A-1360
R-4072	R-4085	R-4086
R-4602	R-4603	R-4604
R-4604	R-4605	R-4606
R-4606	R-4607	R-4608
R-4608	R-4609	R-4610

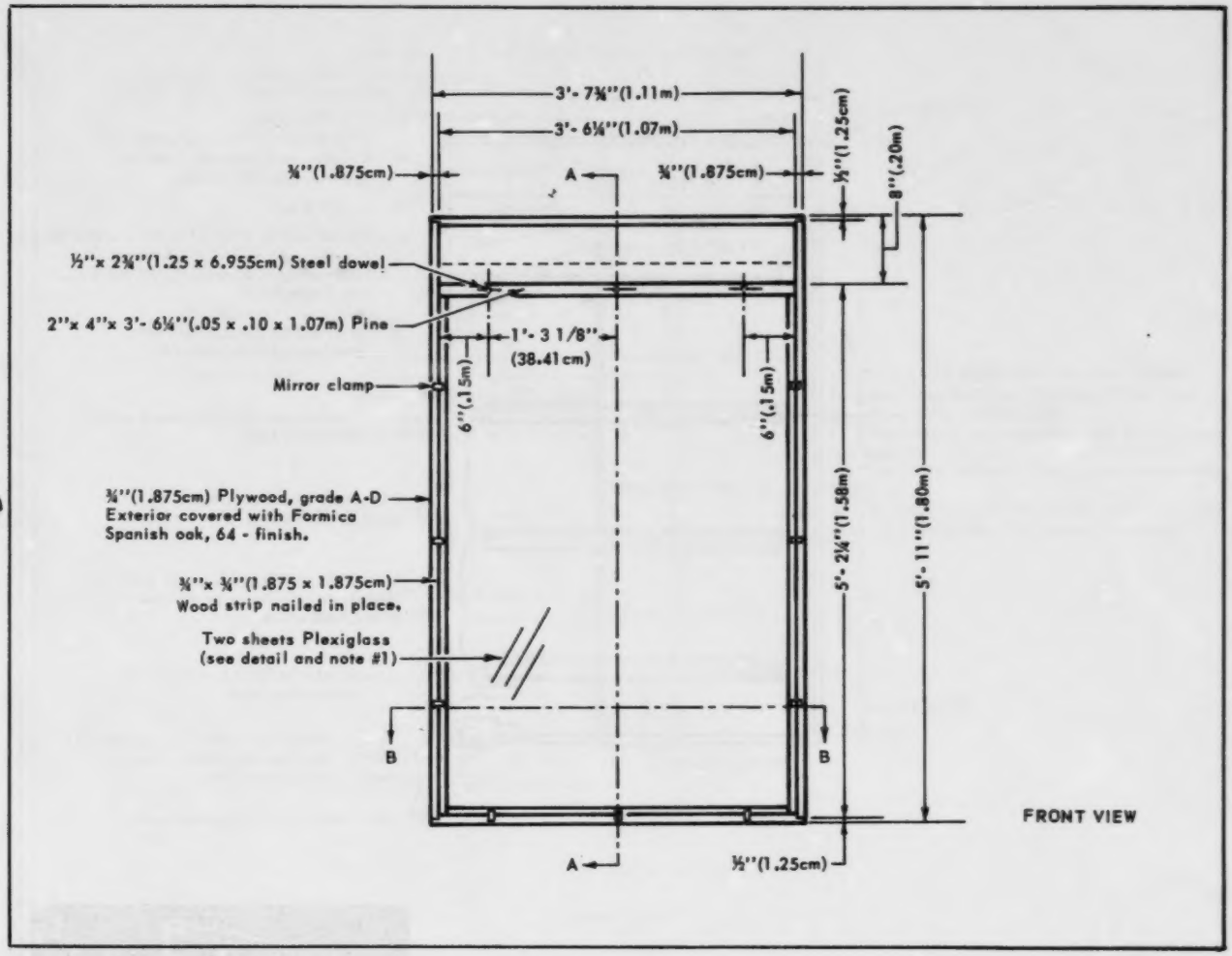
All plans contained in *Design* are presented as guidelines and suggestions, not as blueprints for construction. Before building from any plan, be sure to consult federal, state, and local safety and building codes. We particularly recommend your checking building plans for compliance with the National Fire Protection Association's—NFPA No. 101, "The Life Safety Code," of 1976.

Also, to assure barrier-free design that permits access for all people, check your plans for compliance with the American National Standards Institute's ANSI A117.1 *American National Standard Specifications for Making Buildings and facilities Accessible to, and Usable by, the Physically Handicapped.*

When submitting new material for *Design:*

We'd like a black and white glossy photograph showing your structure. This photo should be of good quality and in sharp focus. For best reproduction, we like to receive 8"x 10" photos, but smaller ones can be used if their quality is good.

Multiple Use and Resource Reference System



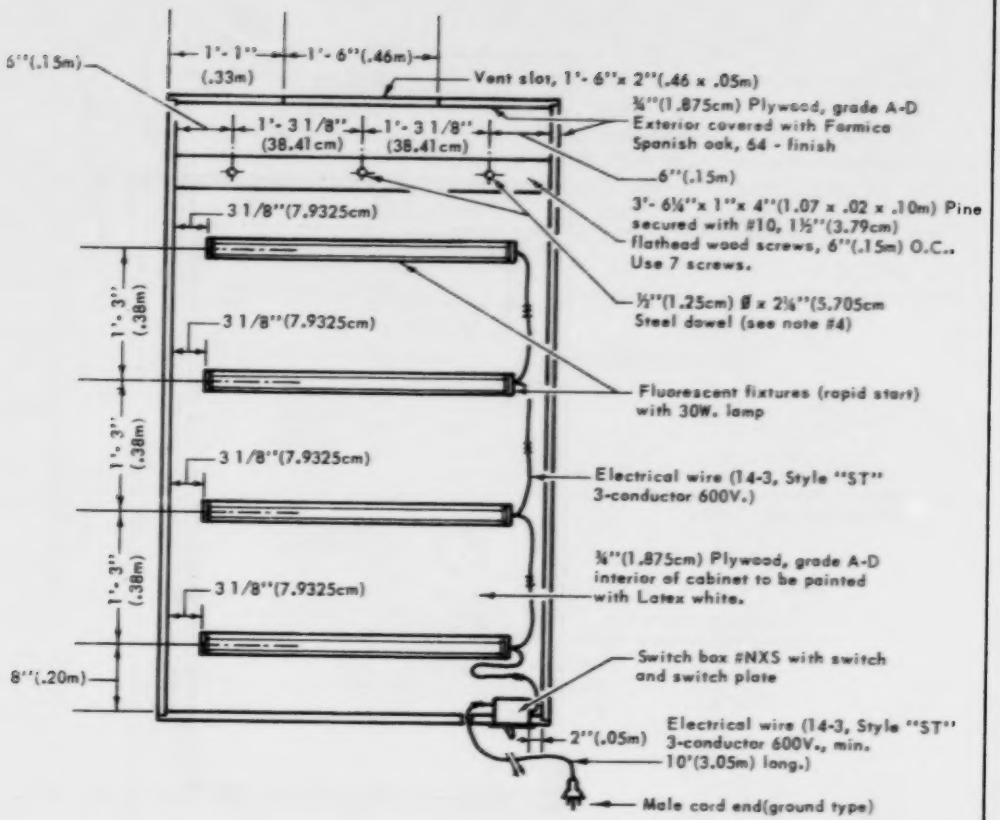
From National Park Service Landscape Architect W. Wayne Gardner comes this useful design for a parkwide multiple resource reference system. With this system, park personnel can view *at one time* all the complexities and interrelationships of land features and physical constraints, administrative and maintenance facilities, circulation systems, visitor facilities, basic resource information, and other data essential to effective day-to-day park management.

A lighted cabinet contains a park base map sandwiched between two sheets of plexiglass. The bottom sheet is white, to diffuse the light from the four 3" (7.5 cm)

(Continued on Sheet A-1359)

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

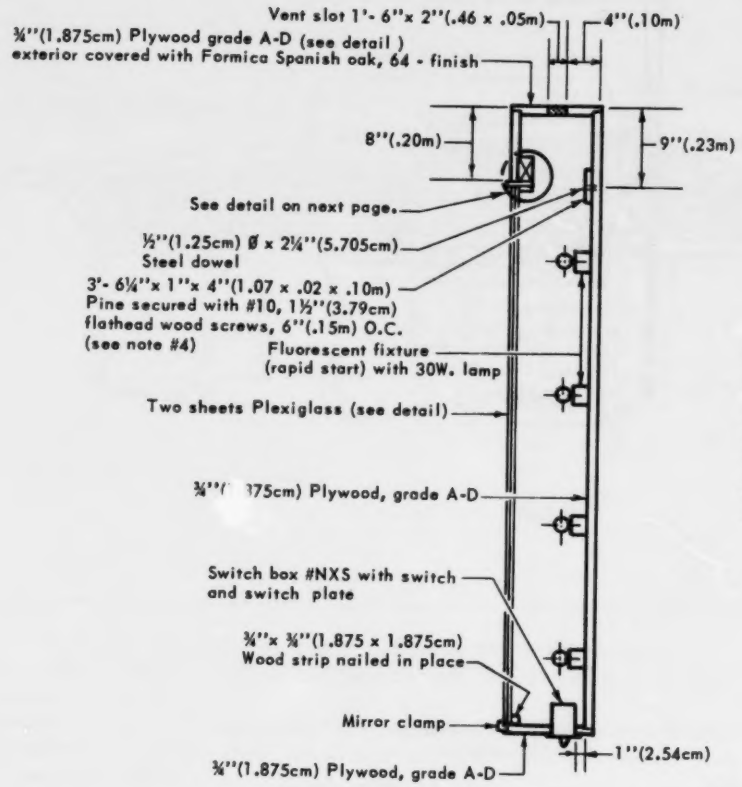
REFERENCE SYSTEM		Contributed by
Index A-1357	Summer 1980	Rocky Mountain NP
	Control S-1616-A	USDI - NPS



FRONT VIEW

ELECTRICAL LAYOUT

FRONT PANEL REMOVED


Vent slot 1'- 6"x 2"(.46 x .05m)
4"(.10m)
¾"(1.875cm) Plywood grade A-D (see detail)
exterior covered with Formica Spanish oak, 64 - finish
8"(.20m)
9"(.23m)
See detail on next page.
½"(1.25cm) Ø x 2¼"(5.705cm)
Steel dowel
3'- 6¼"x 1"x 4"(1.07 x .02 x .10m)
Pine secured with #10, 1½"(3.79cm)
flathead wood screws, 6"(.15m) O.C.
(see note #4)
Fluorescent fixture
(rapid start) with 30W. lamp
Two sheets Plexiglass (see detail)
¾"(375cm) Plywood, grade A-D
Switch box #NXS with switch
and switch plate
¾"x ¾"(1.875 x 1.875cm)
Wood strip nailed in place
Mirror clamp
1"(2.54cm)
¾"(1.875cm) Plywood, grade A-D

SECTION "A"

SIDE

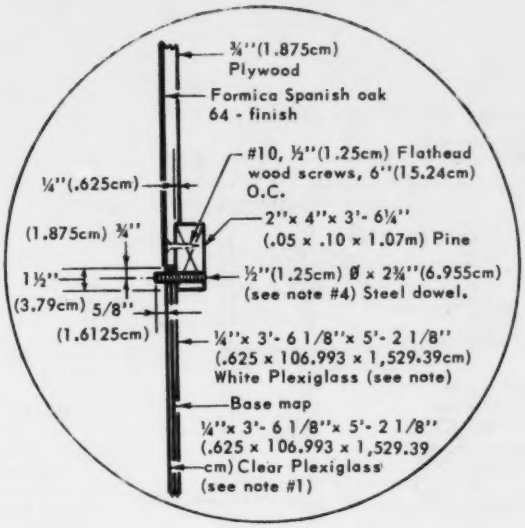
NOTE:

1. Plexiglass shall fit flush with cabinet face and hang to have 1/16"(.15625cm) max. clearance from cabinet sides.
2. Products of equal quality may be substituted material.
3. Interior of cabinet to be painted with white Latex.
4. A snug fitting rubber washer shall be used over each steel dowel to secure overlays.

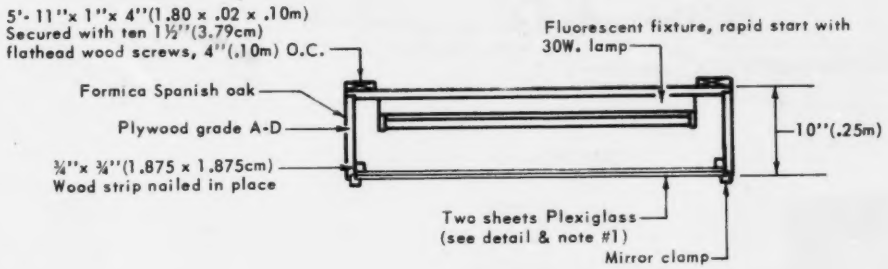
(Continued from Sheet A-1357)

fluorescent tubes placed behind it; the top sheet is clear and can be drawn on with a grease pencil during presentations or planning sessions. Mylar overlays, identifying the various systems, resources, complexities, and components of the park are hung over the base map, as needed, to indicate overall relationships. The overlays are held in place with steel dowels. When not in use, the overlays can be stored on the back of the cabinet, leaving only the base map visible.

This ingenious system expedites and simplifies the collection and analysis of data by presenting all information regarding the park in an analytical and orderly fashion. It also can provide new employees with a wonderful orientation to the park.



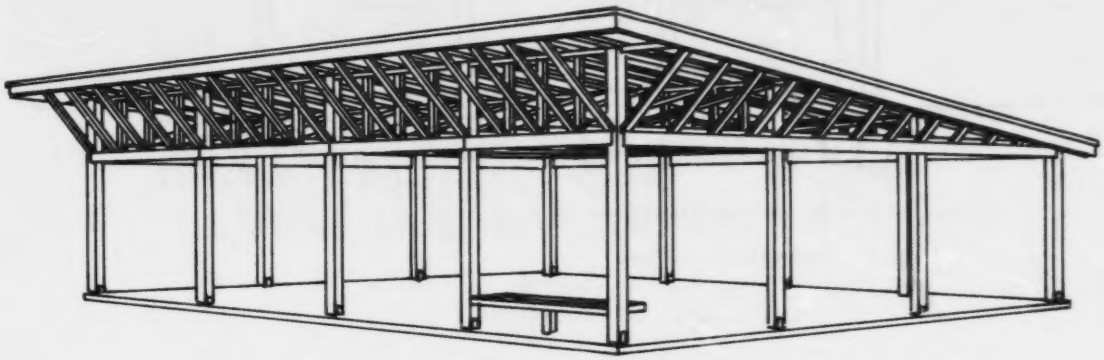
DETAIL



SECTION "B"

END

Angle-Roofed Picnic Shelter



PERSPECTIVE

If you are tired of the standard pitch roof type of picnic shelter, this design by Timothy Priegel of the City of Norfolk's Department of Parks and Recreation offers an interesting alternative.

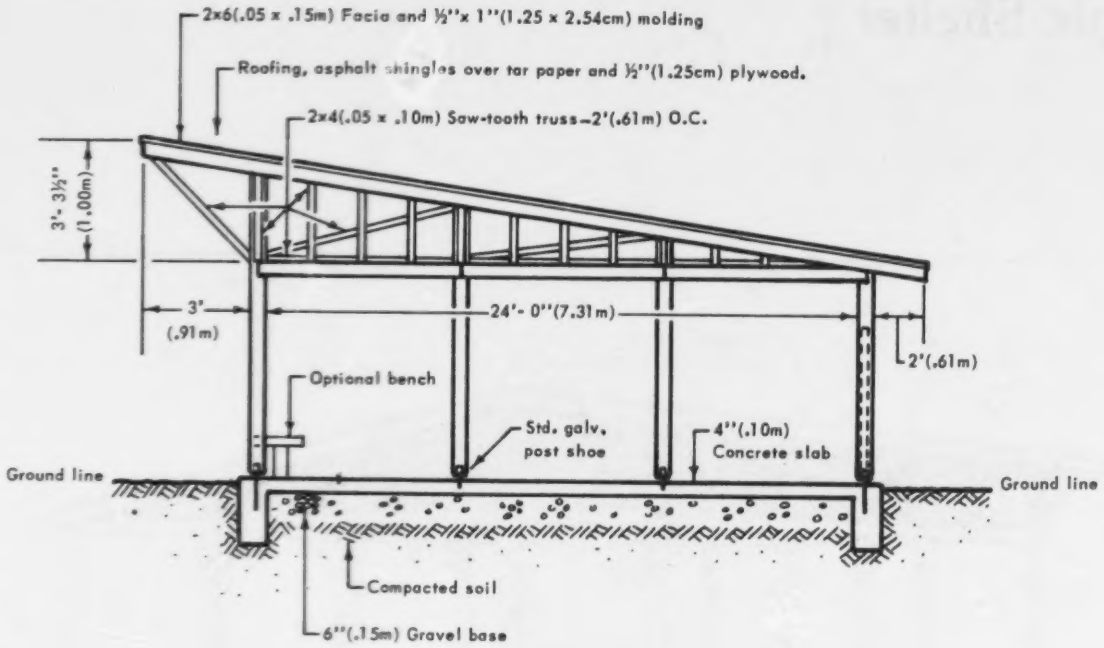
A dramatic, one-piece, flat, angled roof is supported by saw-tooth trusses. Besides serving as structural supports, these saw-tooth trusses add a decorative element to the front of the picnic shelter.

The shelter floor is a 4" (10 cm) concrete slab; the posts are 6" × 6" (15 × 15 cm) timbers. Galvanized post shoes are used to deter timber rot. Benches can be built in between the posts and/or screening can be added to the back. Galvanized hardware is used throughout and the structure can be strengthened further by adding angle irons.

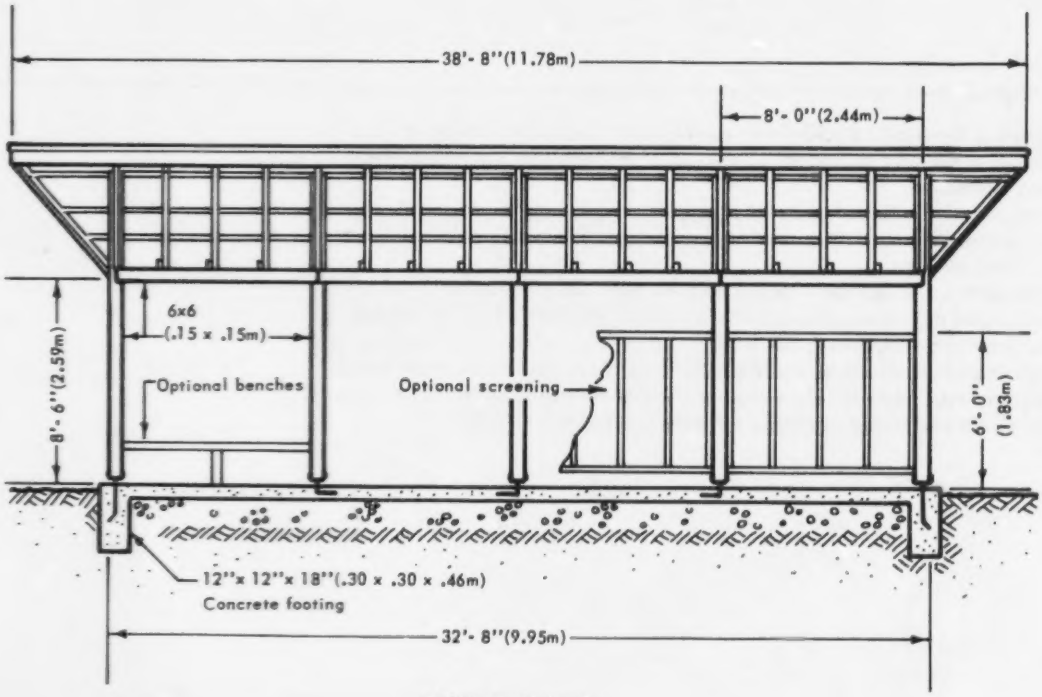
One cautionary note: since the slope ratio of the roof is approximately 12 to 1.25, this may not be the best design to choose for areas that get heavy snow.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

ANGLE-ROOFED PICNIC SHELTER		Contributed by
Index **R-4085**	Summer 1980	City of Norfolk, Virginia
	Control N-1615-R	

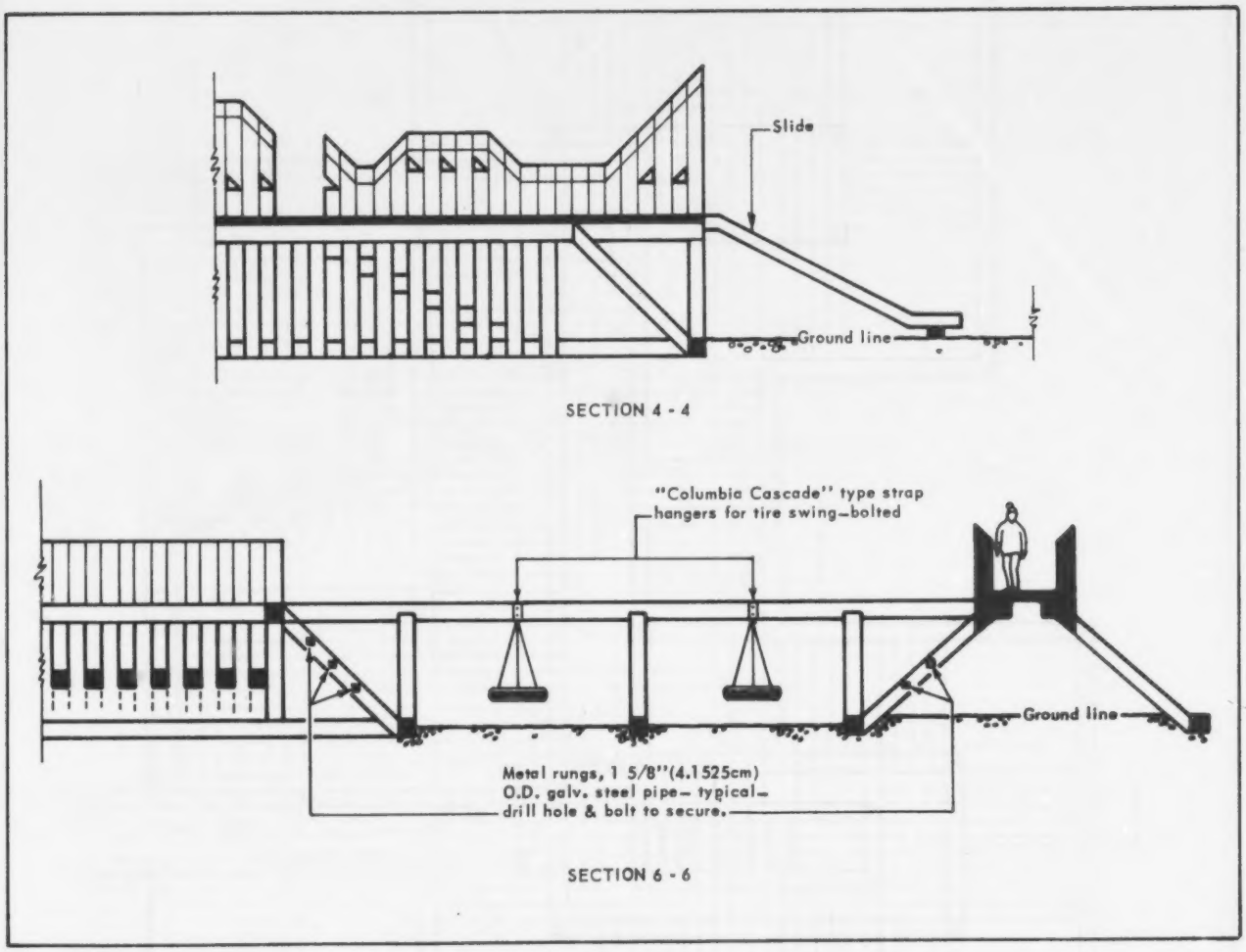


SIDE ELEVATION



FRONT ELEVATION

Children's Play Fort


Slide
Ground line
SECTION 4 - 4
"Columbia Cascade" type strap hangers for tire swing—bolted
Ground line
Metal rungs, 1 5/8"(4.1525cm) O.D. galv. steel pipe— typical— drill hole & bolt to secure.
SECTION 6 - 6

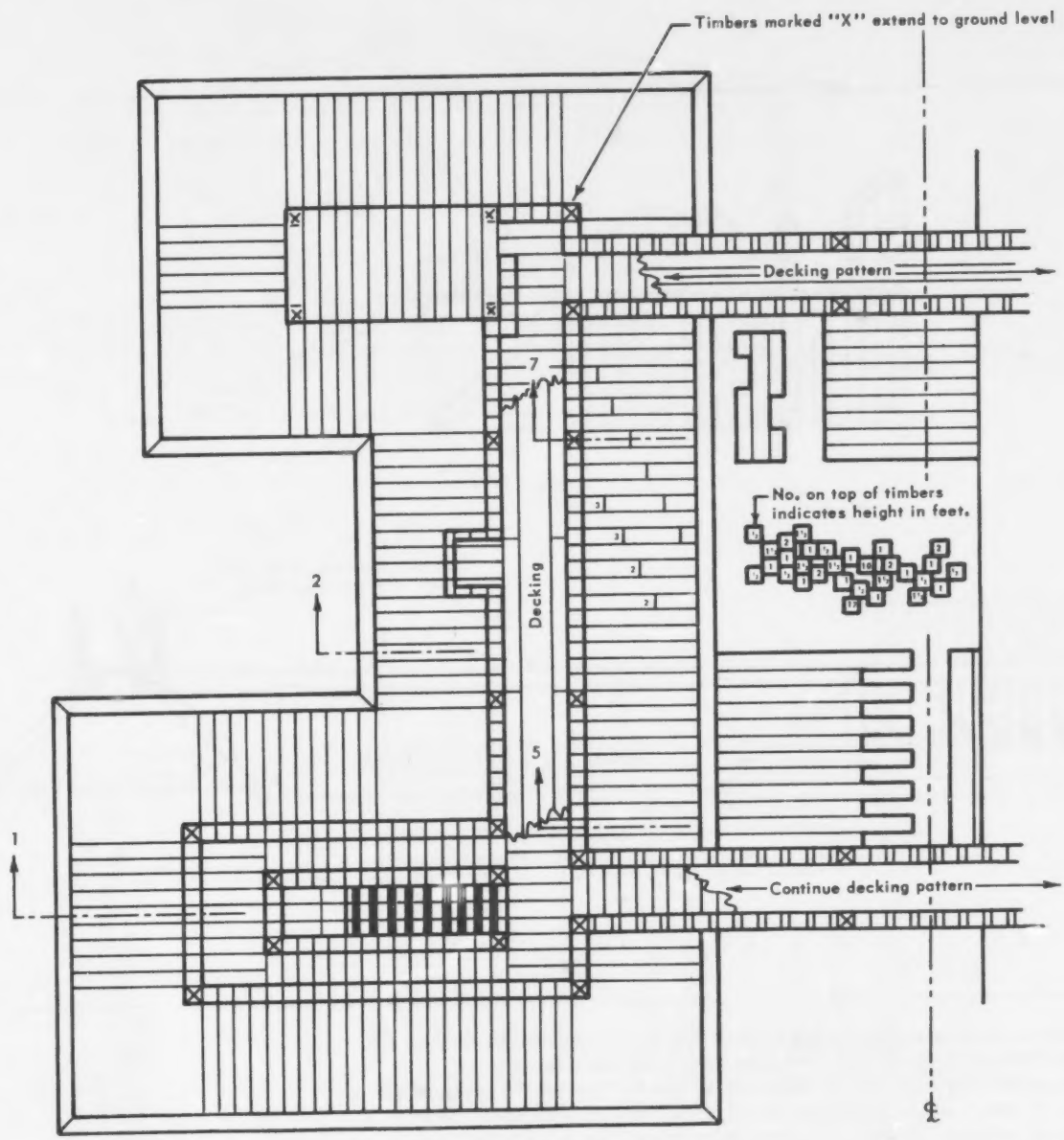
Imaginative, functional, and just plain fun, this play fort submitted by the Northern Virginia Park Authority should delight youngsters and adults as well.

Designed by Guy L. Randon & Associates of Reston, Virginia, the structure is built of 8" × 8" (20 × 20 cm) timber beams and posts. The deck area, reachable by a number of stairways, stands 5½' (1.6 m) above ground. Among the play fort's features are tire swings, rope ladder, hand-over-hand bars, slide, bridge, and "peekaboo" cutouts.

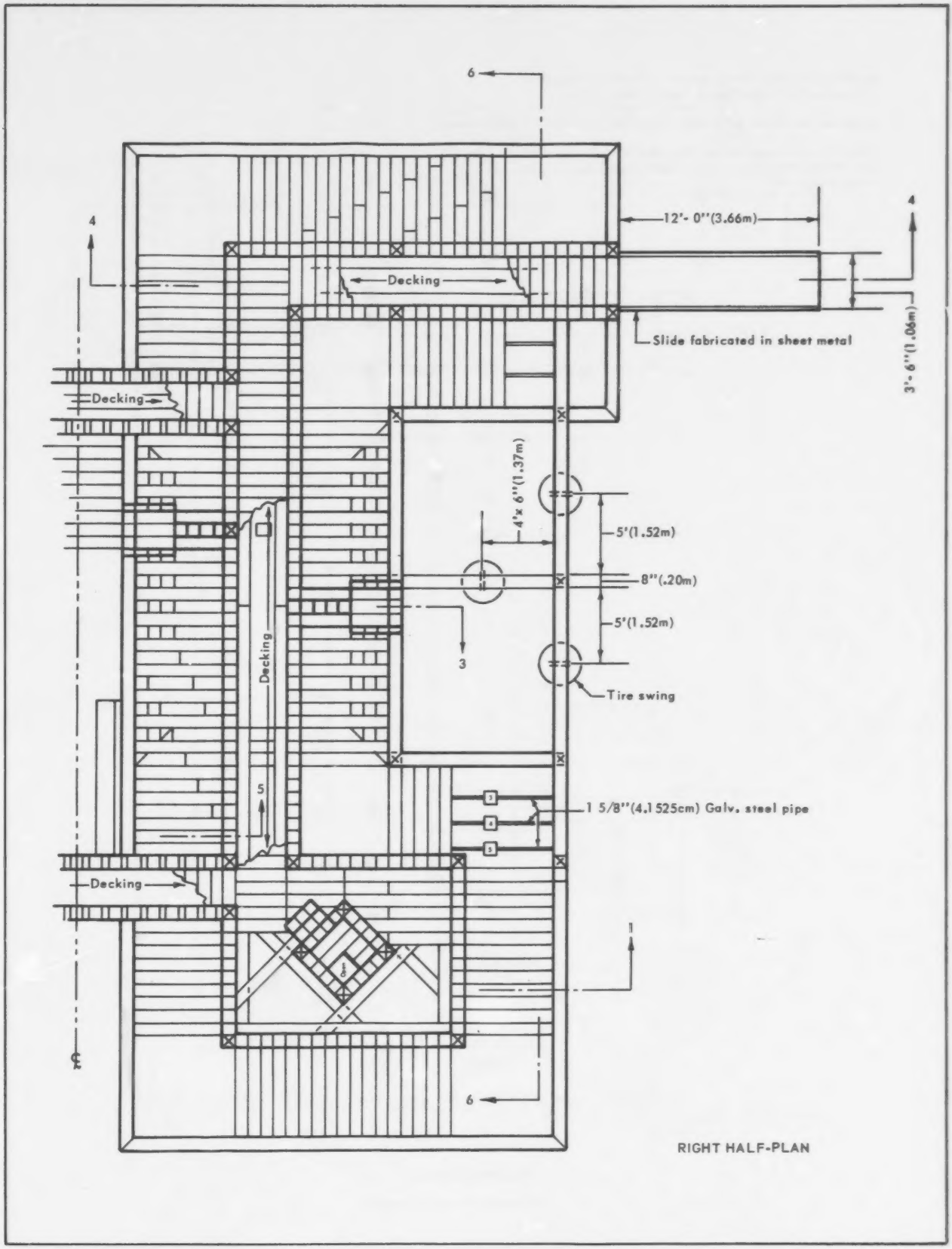
For maximum safety, all exposed angled edges of timber have been rounded off. Likewise, all timber connections are spiked and hammered flush with face.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

CHILDREN'S PLAY FORT		Contributed by
Index R-4603	Summer 1980	Darrell G. Winslow
	Control N-1599-R	Upton Hill Regional Park



LEFT HALF-PLAN

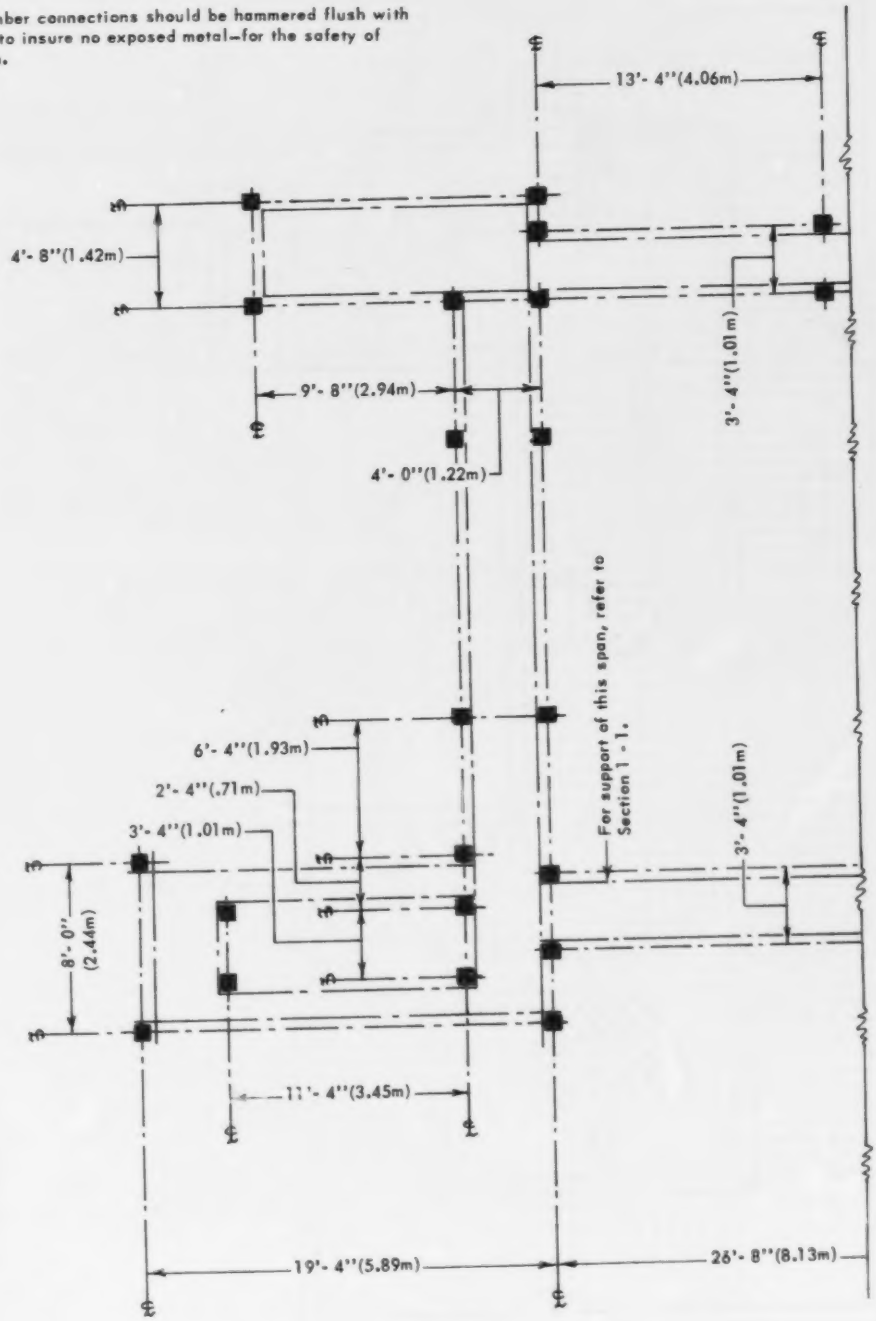


CHILDREN'S PLAY FORT (continued) R-4605

8x8(2.44 x 2.44m) Timber beams are halved at the joints and spiked to the 8x8(2.44 x 2.44m) timber posts.

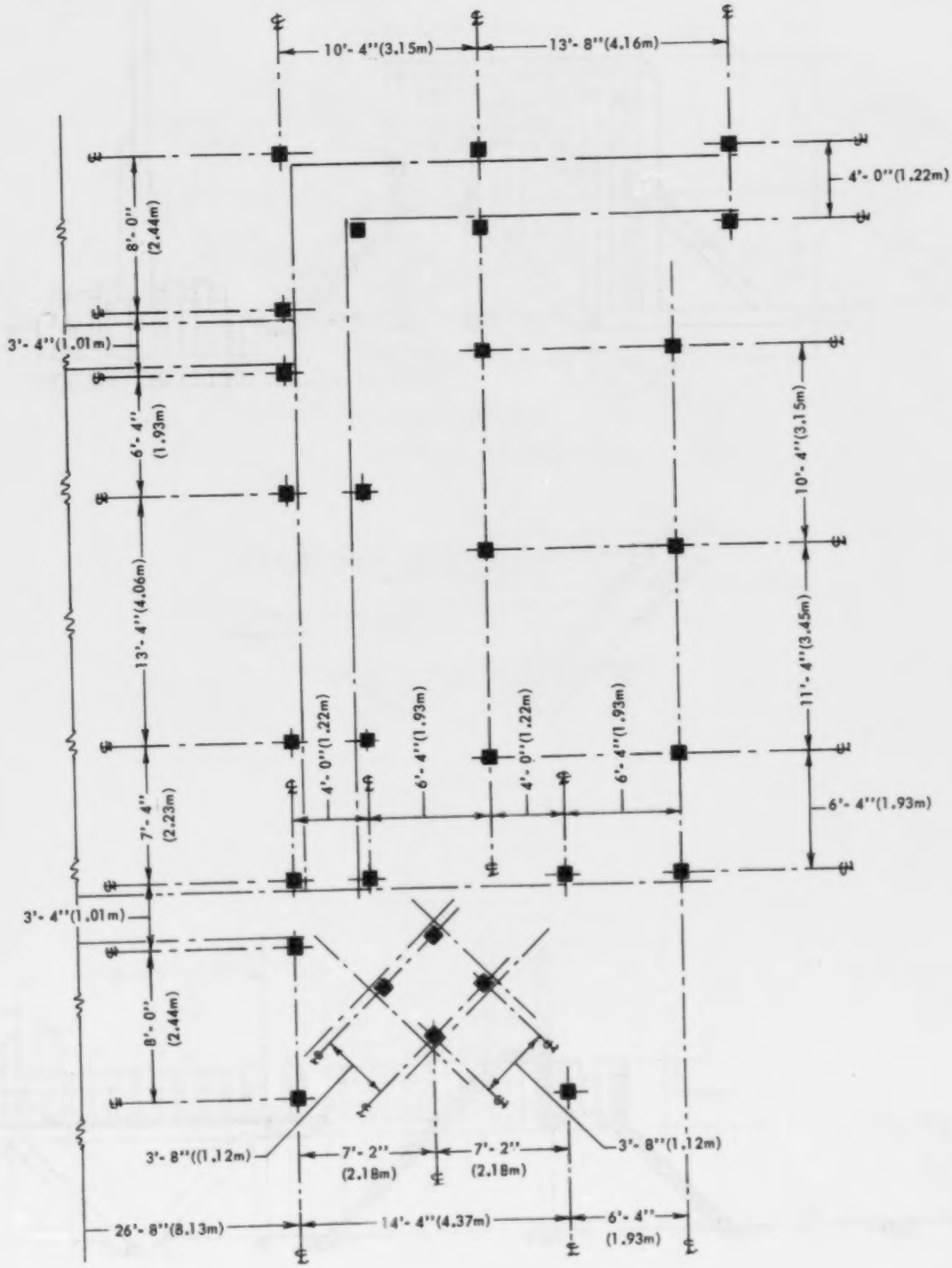
Posts are set below grade into compacted soil, treated and stained.

Spikes at all timber connections should be hammered flush with face of member to insure no exposed metal–for the safety of playing children.

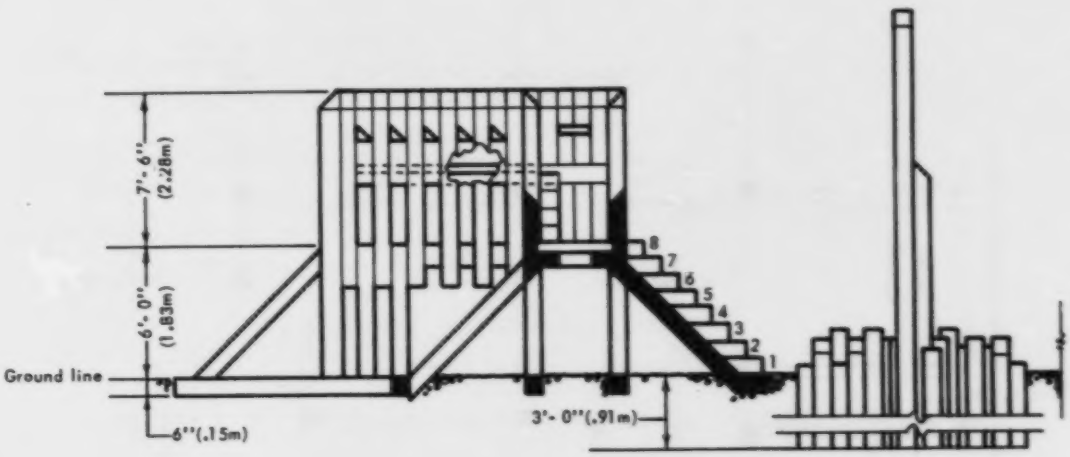


FRAMING PLAN

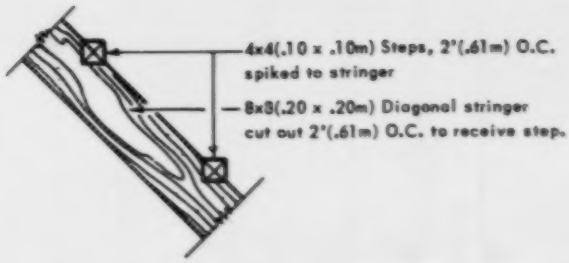
Principal Structural Members



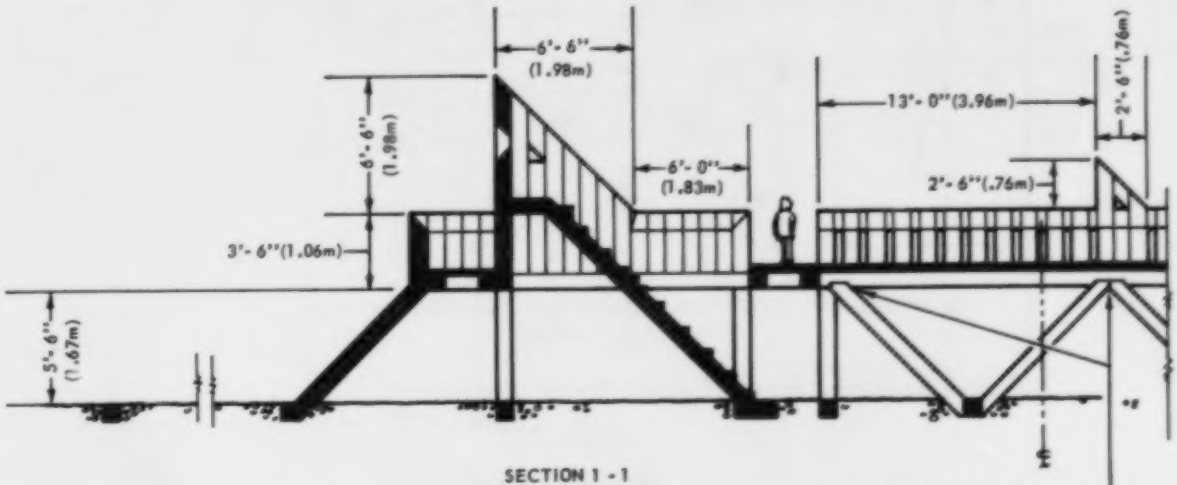
FRAMING PLAN (Continued)



SECTION 2 - 2

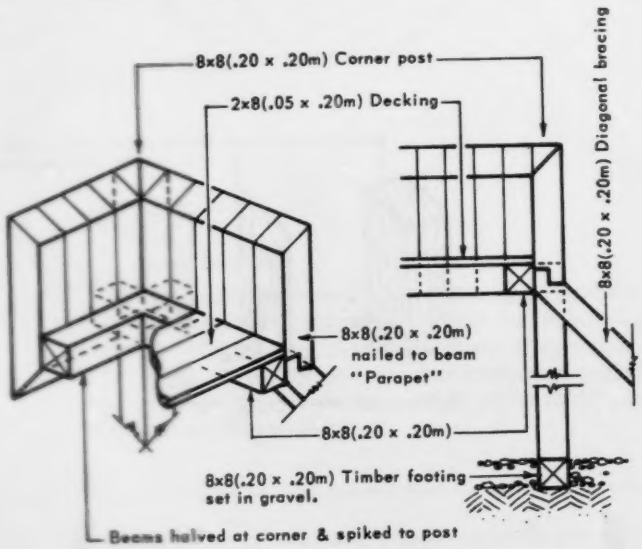


TYPICAL SECTION OF LADDER

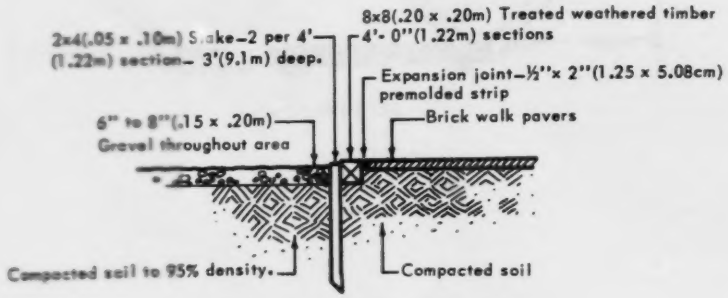


SECTION 1 - 1

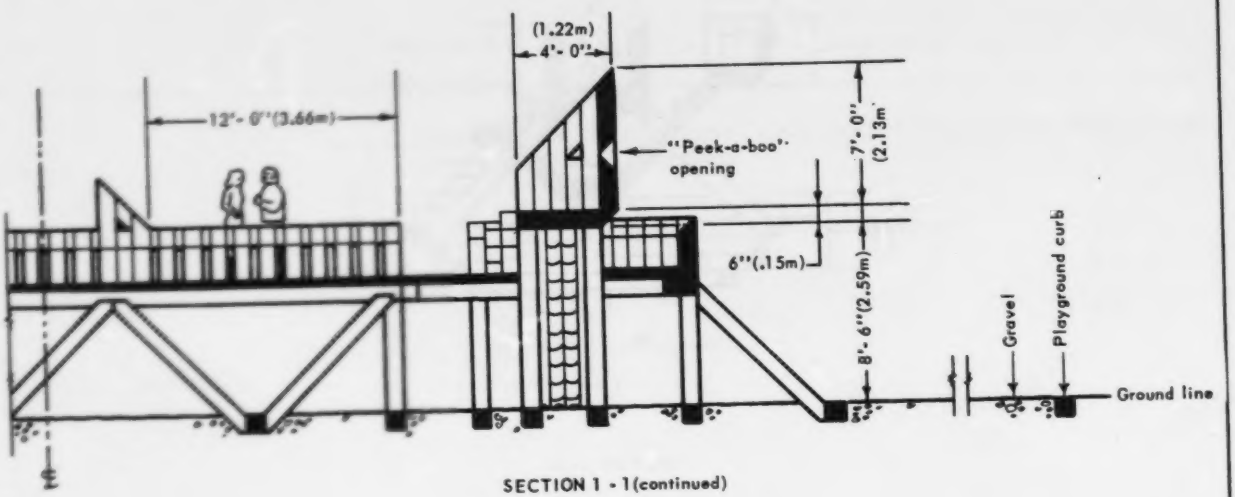
Cut out 8x8(.20 x .20m) Beam to receive diagonal bracing only at bridge span.


8x8(.20 x .20m) Corner post
2x8(.05 x .20m) Decking
8x8(.20 x .20m) Diagonal bracing
8x8(.20 x .20m) nailed to beam "Parapet"
8x8(.20 x .20m)
8x8(.20 x .20m) Timber footing set in gravel.
Beams halved at corner & spiked to post

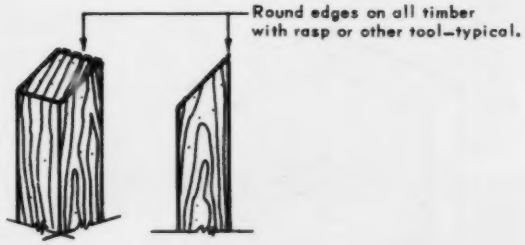
DETAIL OF "PARAPET"


8x8(.20 x .20m) Treated weathered timber
2x4(.05 x .10m) Stake–2 per 4' (1.22m) section– 3'(9.1m) deep.
4'- 0"(1.22m) sections
Expansion joint–½"x 2"(1.25 x 5.08cm) premolded strip
6" to 8"(.15 x .20m) Gravel throughout area
Brick walk pavers
Compacted soil to 95% density.
Compacted soil

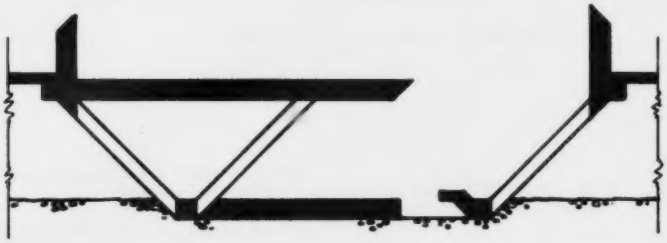
DETAIL OF TYPICAL PLAYGROUND CURB



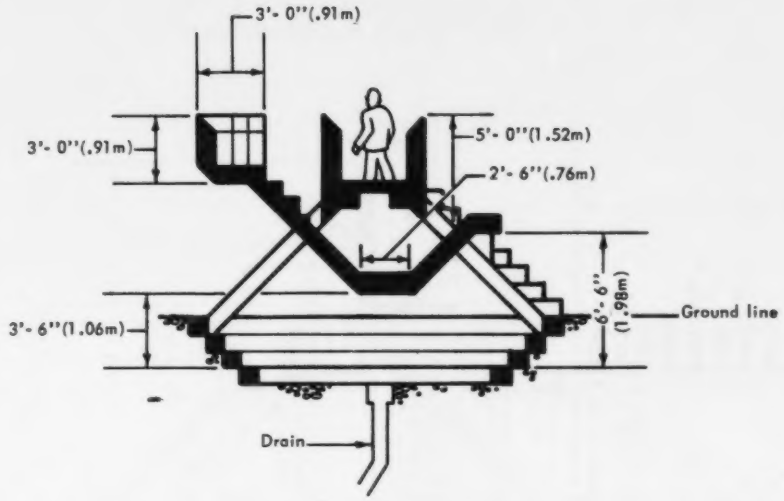
SECTION 1 - 1(continued)



DETAIL OF POST ENDS



SECTION 5 - 5



SECTION 3 - 3

User Evaluation—Design

Dear Reader:

We at the Heritage Conservation and Recreation Service are interested in your comments and suggestions about this publication. We have provided this form in order for you to express whatever opinions you have. If you wish to comment, please remove this user evaluation page and fold it so that the HCRS address appears on the outside. After folding, use tape or staples to close. No postage is necessary.

fold

1. What actions have you taken or do you plan to take based upon your reading of this publication?

fold

2. Which parts of the publication, if any, were difficult to understand or use? How could they be improved?

3. Do you know of any materials that might be suitable for future issues of Design? How can we contact you?

fold

fold

Official Business
Penalty for Private Use, $300

Business Reply Mail
First Class Permit No. 12886 Washington, D.C.
Postage will be paid by U.S. Government Agency

Park Practice
Park and Recreation Technical Services
Heritage Conservation and Recreation Service
440 G Street, NW
Washington, DC 20243

No Postage
Necessary
If Mailed in
the United States

I 70.22/3:980/4
8969
Cantin

Fall 1980

Design

U.S. Department
of the Interior

Heritage Conservation
and Recreation Service

Design

A publication of Park Practice

Park Practice is a cooperative effort of the Heritage Conservation and Recreation Service and the National Recreation and Park Association.

Chris Therral Delaporte, Director
Heritage Conservation and Recreation Service

John H. Davis, Executive Director
National Recreation and Park Association

Editoral Staff

Heritage Conservation and Recreation Service
Division of Park and Recreation Technical Services
U.S. Department of the Interior

James A. Burnett, Editor, *Design* and *Grist*

Kathleen A. Pleasant, Editor, *Trends*

Donald F. Benson, Architectural
Consultant on NPS Contributions
Denver Service Center

Contractors to Park Practice

Maureen Palmedo and **Associates**, Consulting Editors,
Trends, Grist, Design

Park Practice includes: *Trends*, a quarterly publication on topics of general interest in park and recreation management and programming; *Grist* a bi-monthly publication on practical solutions to everyday problems in park and recreation operations; and *Design*, a quarterly compendium of plans for park and recreation structures which demonstrate quality design and intelligent use of materials.

Membership in Park Practice includes a subscription to all three publications and selected back issues in vinyl binders with indices and all publications for the calendar year.

The information presented in any of the publications of Park Practice does not reflect an endorsement by the agencies sponsoring the program or the editors.

Articles, suggestions, ideas and comments are invited and should be sent to Park Practice, U.S. Department of the Interior, Heritage Conservation and Recreation Service,
440 G Street, N.W.
Washington, D.C. 20243

HCRS
U.S. Department of the Interior
Heritage Conservation and Recreation Service

Introduction

In Fall, as visitation tapers off, many recreation areas and parks have a chance to assess their facilities and make plans for needed repairs and new construction. To stimulate your planning and pose new possibilities, this issue of DESIGN contains a variety of useful structures.

You'll find an interesting Forest Service system for building gracefully sloping trail steps on steep grades. A vehicle maintenance shop, partially built into a hill, uses an earth-sheltering concept that could be adapted to a number of appropriate sites. There's an attractive dock house with portal, and finally, you'll see how an unexpected circular shape can give even a restroom surprising design interest.

This chart indicates the proper place to insert new design sheets in your DESIGN binder.

Return your Feedback sheet if you can.

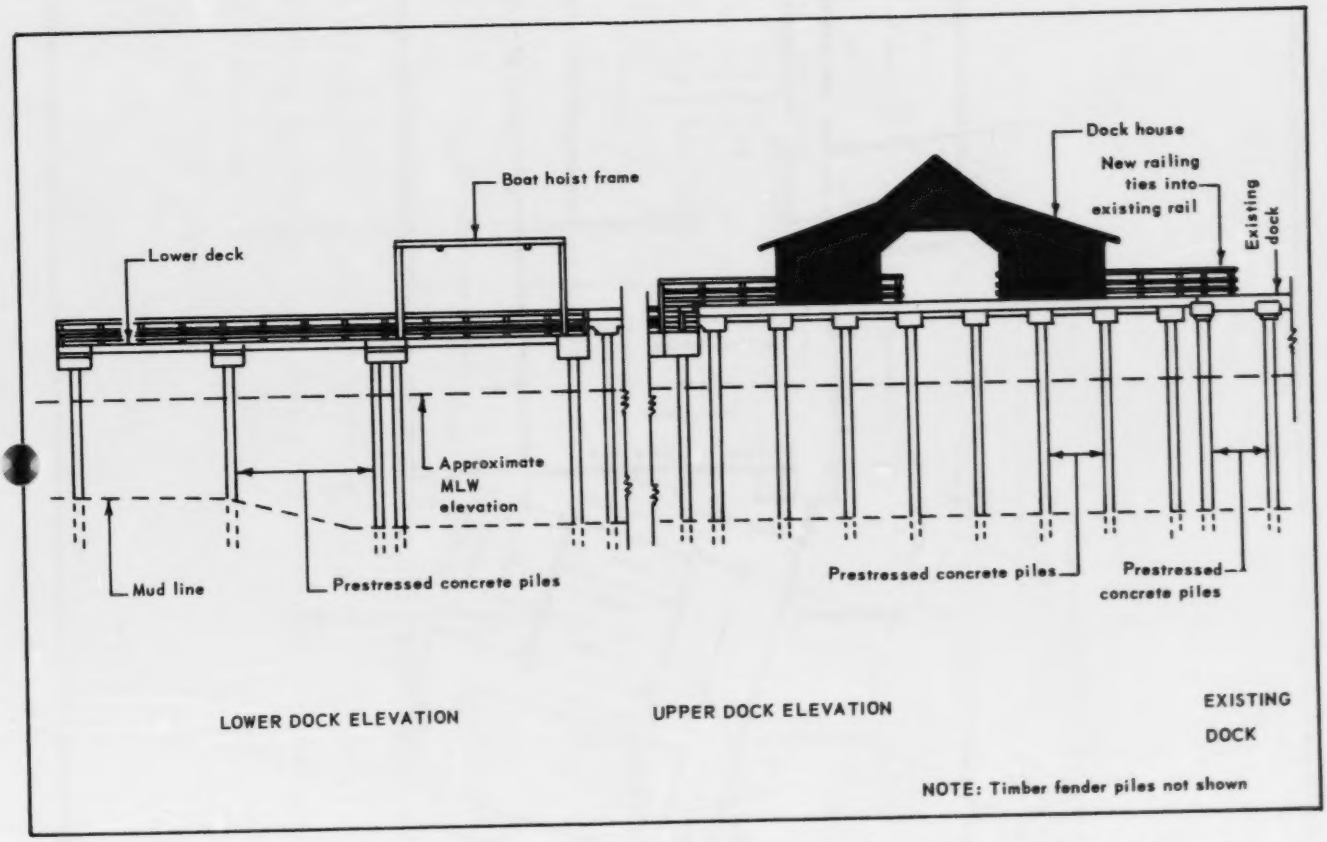
Behind Index No.	Insert New Sheet Index No.	Backed by Index No.
A-1106	A-1195	A-1196
A-1196	A-1197	A-1198
A-1198	A-1199	A-1200
A-1744	A-1745	A-1746
B-3082	B-3097	B-3098
B-3098	B-3099	B-3100
B-3176	B-3285	B-3286

All plans contained in *Design* are presented as guidelines and suggestions, not as blueprints for construction. Before building from any plan, be sure to consult federal, state, and local safety and building codes. We particularly recommend your checking building plans for compliance with the National Fire Protection Association's—*NFPA No. 101. "The Life Safety Code," of 1976.*

To assure barrier-free designs that permit access for all people, check your plans for compliance with the American National Standards Institute's *ANSI A117.1 American National Standard Specifications for making Buildings and Facilities Accessible, and Usable by, the Physically Handicapped.*

When new material is sent in for *Design*, we'd like a black and white glossy photograph showing the structure. This photo should be of good quality and in sharp focus. For best reproduction, we like to receive 8" x 10" photos, but smaller ones can be used if their quality is good. Thank you!

Dock House with Portal



Both attractive and practical, this dock house provides visitor contact space as well as substantial storage area, restroom facilities, and a janitor closet.

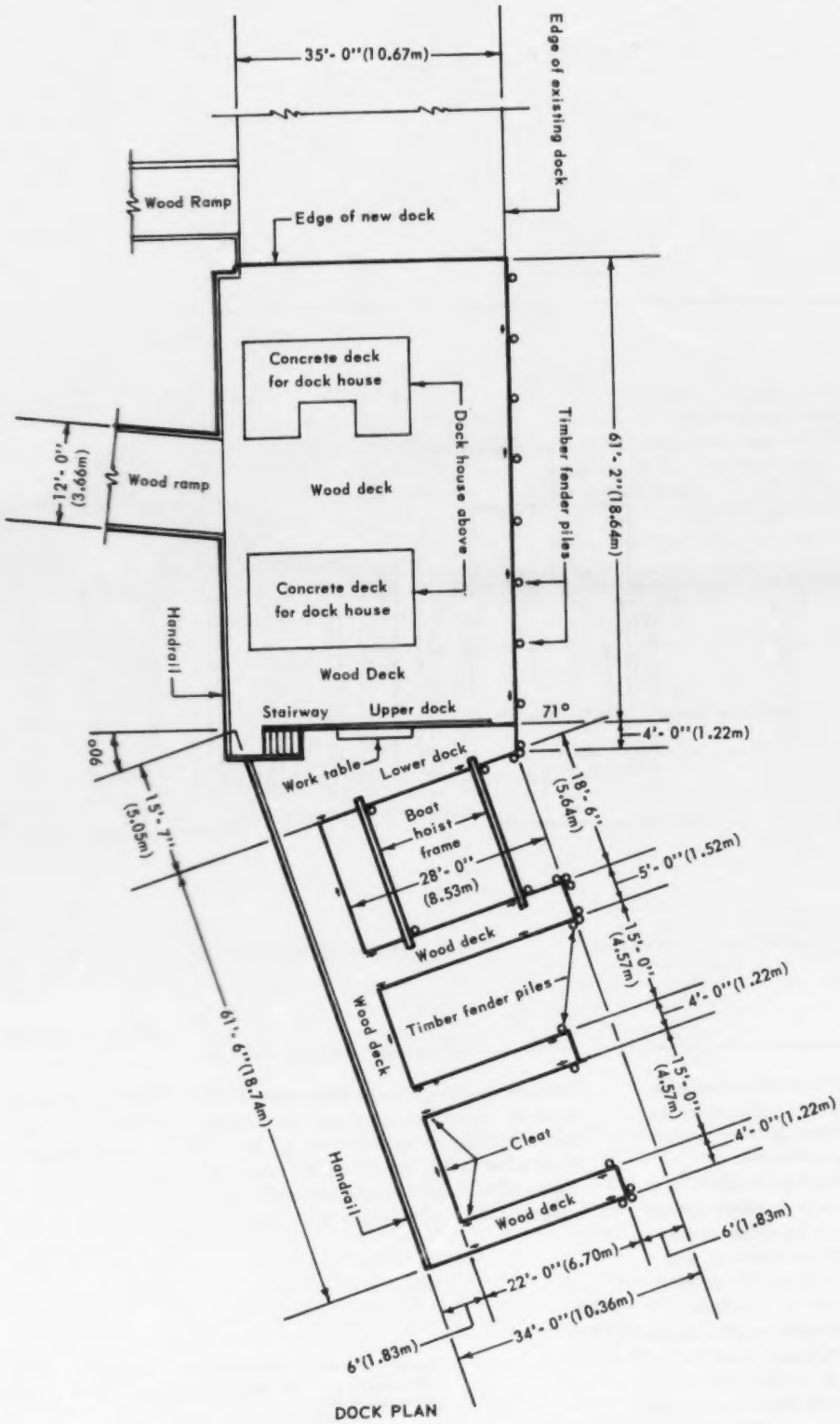
Construction materials include 1" x 6" (2.5 x .5 cm) tongue and groove cypress siding over plywood sheathing, terne-coated stainless steel for the roof, and concrete slab for the floor. Pre-stressed concrete piles support the structure.

Among the interesting design features are a center walk-through portal and a dramatic standing seam roof that changes from a steeply pitched center portion to more gently sloping edges. The design lines up the storage and visitor contact areas on one side of the portal, permitting some flexibility in adjusting the size of these areas to suit specific needs. Restrooms have compartments for handicapped visitors, but be sure to check ANSI specifications for sizes and clearances before starting construction.

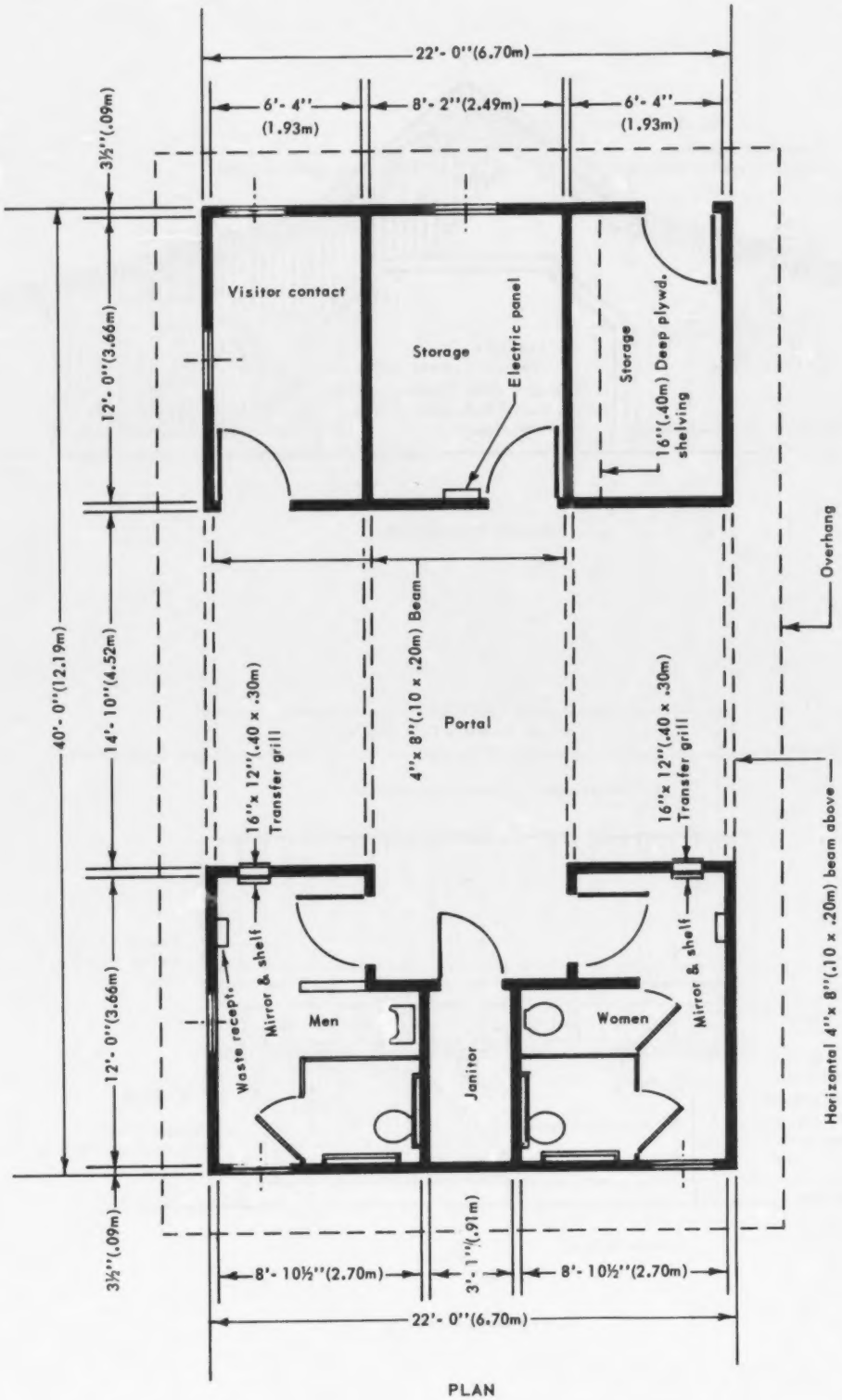
While designed for the Garden Key dock area in Fort Jefferson, New Mexico, this NPS Denver Service Center plan could also be adapted to land sites.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

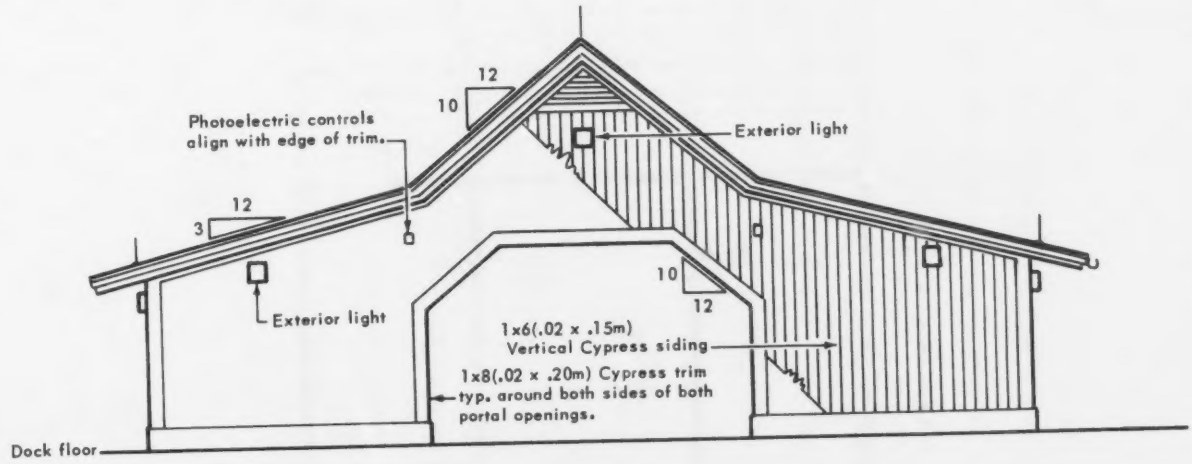
CONTACT FOR DOCK AREA		Contributed by
Index **A-1195**	October 1980	Denver Serv. Center NPS - USDI
	Control S-1573-A	


35'- 0"(10.67m)
Edge of existing dock
Wood Ramp
Edge of new dock
Concrete deck for dock house
Dock house above
Timber fender piles
61'- 2"(18.64m)
12'- 0" (3.66m)
Wood ramp
Wood deck
Concrete deck for dock house
Handrail
Wood Deck
Stairway
Upper dock
71°
4'- 0"(1.22m)
90°
Work table
Lower dock
15'- 7" (5.05m)
18'- 6" (5.64m)
Boat hoist frame
28'- 0" (8.53m)
5'- 0"(1.52m)
Wood deck
15'- 0" (4.57m)
Timber fender piles
4'- 0"(1.22m)
Wood deck
61'- 6"(18.74m)
Cleat
Handrail
Wood deck
6'(1.83m)
22'- 0"(6.70m)
34'- 0"(10.36m)
6'(1.83m)

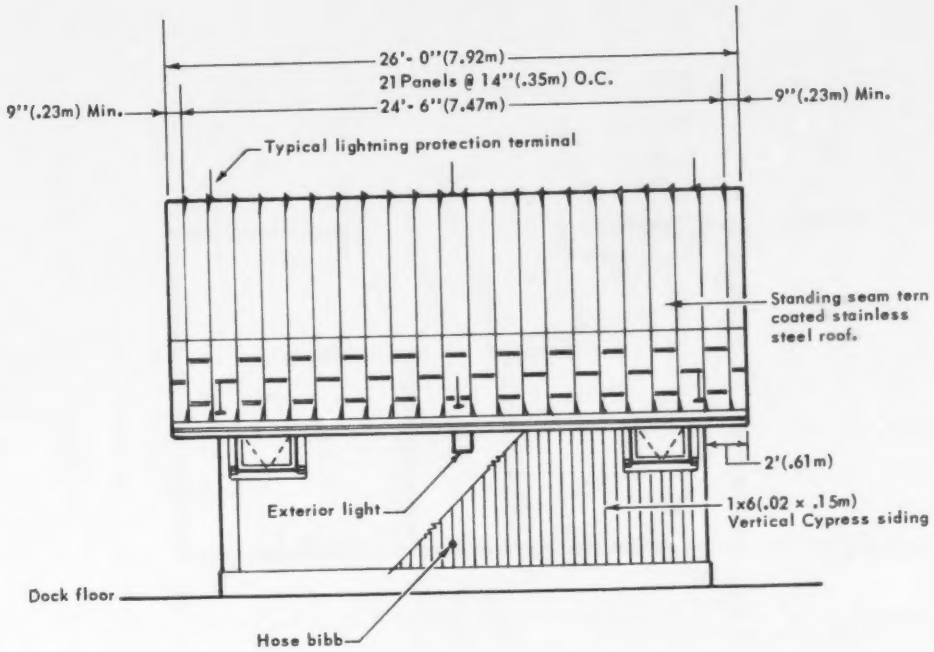
DOCK PLAN


22'- 0"(6.70m)
6'- 4"
(1.93m)
8'- 2"(2.49m)
6'- 4"
(1.93m)
3½"(.09m)
12'- 0"(3.66m)
Visitor contact
Storage
Electric panel
Storage
16"(.40m) Deep plywd. shelving
Overhang
40'- 0"(12.19m)
14'- 10"(4.52m)
4"x 8"(.10 x .20m) Beam
Portal
16"x 12"(.40 x .30m) Transfer grill
16"x 12"(.40 x .30m) Transfer grill
Horizontal 4"x 8"(.10 x .20m) beam above
Waste recept.
Mirror & shelf
Men
Janitor
Women
Mirror & shelf
12'- 0"(3.66m)
3½"(.09m)
8'- 10½"(2.70m)
3'- 1"(.91m)
8'- 10½"(2.70m)
22'- 0"(6.70m)

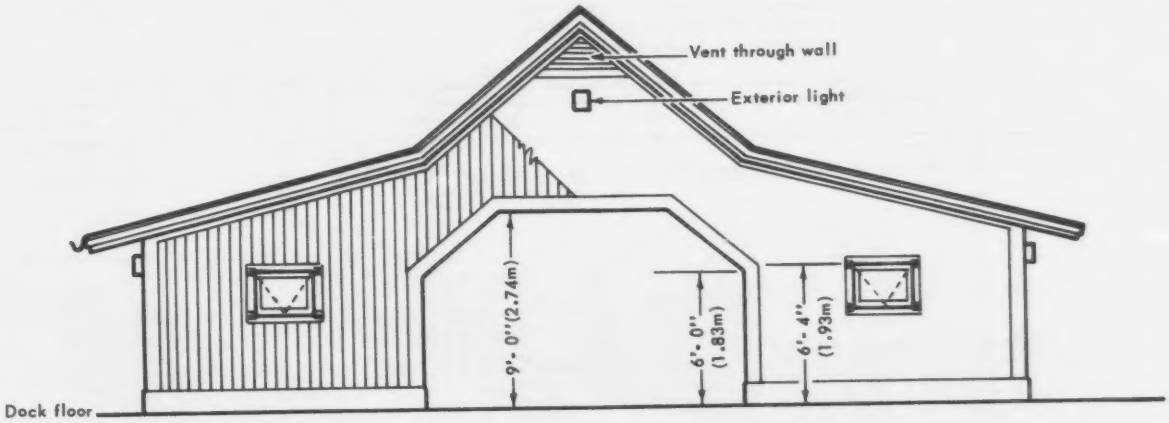
PLAN



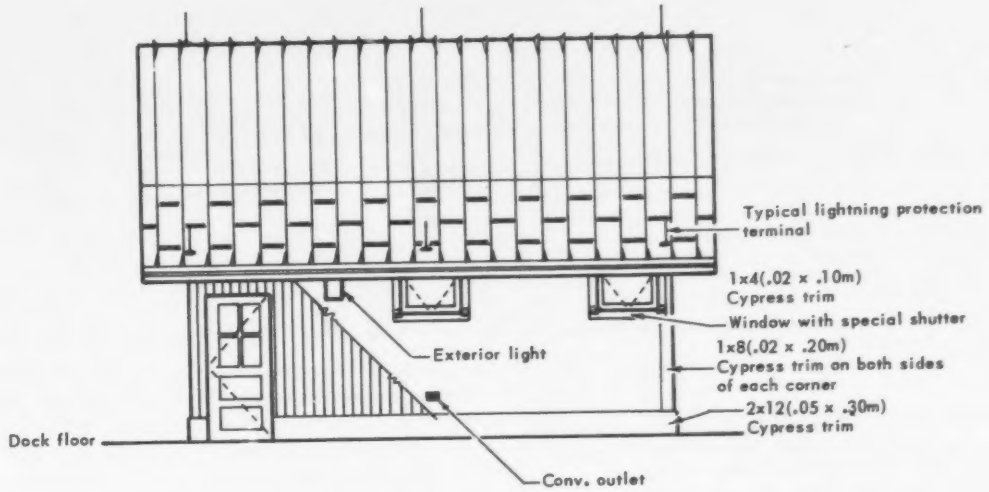
NORTH ELEVATION



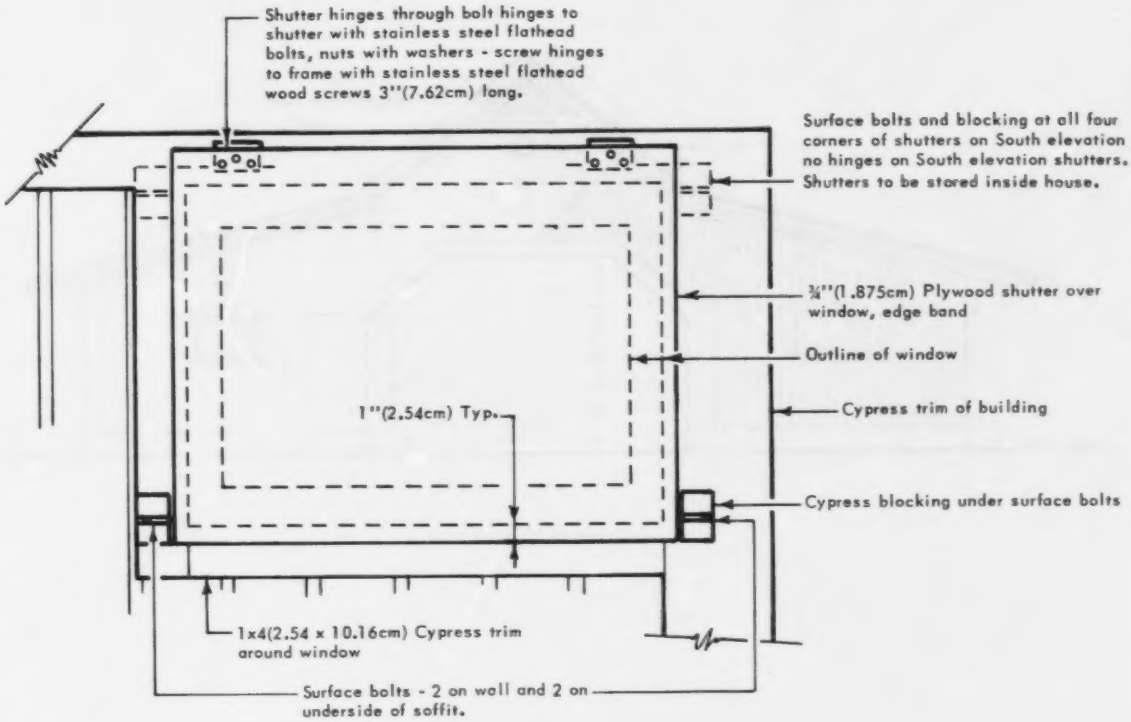
EAST ELEVATION



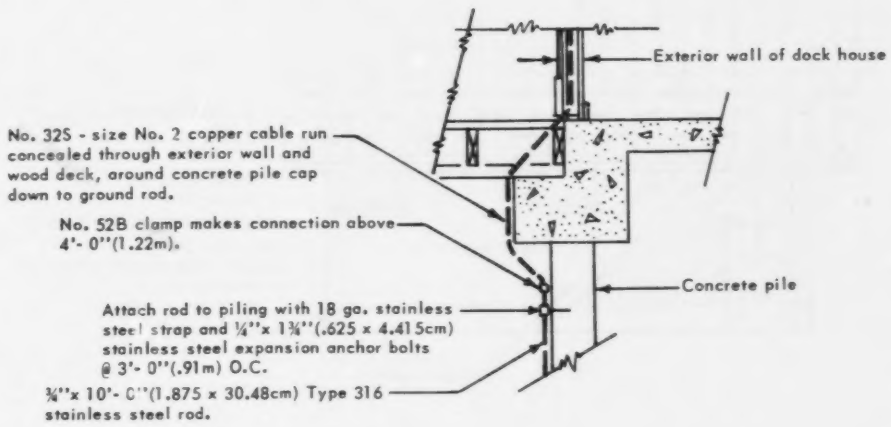
SOUTH ELEVATION



WEST ELEVATION

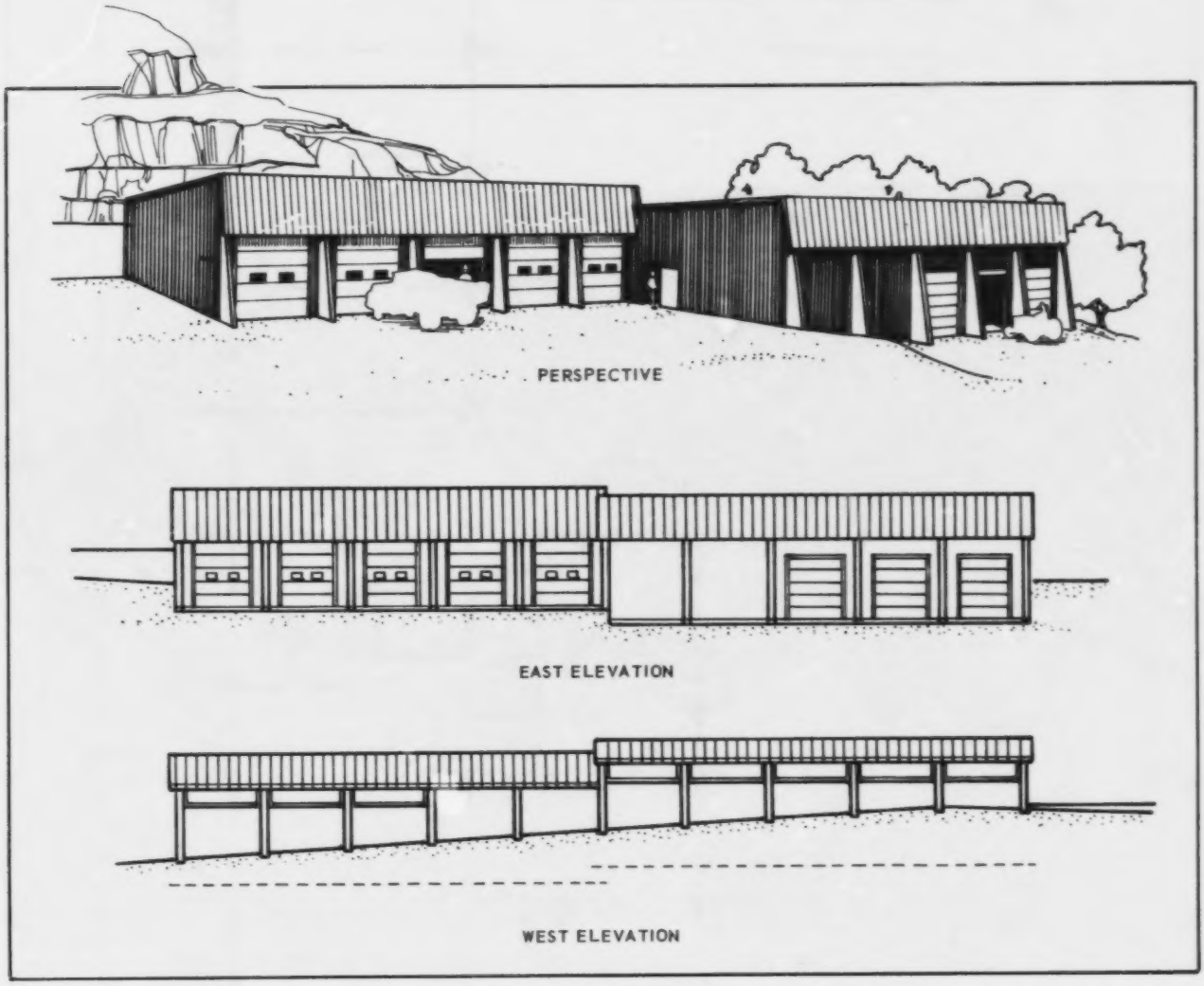

Shutter hinges through bolt hinges to shutter with stainless steel flathead bolts, nuts with washers - screw hinges to frame with stainless steel flathead wood screws 3"(7.62cm) long.
Surface bolts and blocking at all four corners of shutters on South elevation no hinges on South elevation shutters. Shutters to be stored inside house.
¾"(1.875cm) Plywood shutter over window, edge band
Outline of window
Cypress trim of building
1"(2.54cm) Typ.
Cypress blocking under surface bolts
1x4(2.54 x 10.16cm) Cypress trim around window
Surface bolts - 2 on wall and 2 on underside of soffit.

SHUTTER DETAIL


Exterior wall of dock house
No. 32S - size No. 2 copper cable run concealed through exterior wall and wood deck, around concrete pile cap down to ground rod.
No. 52B clamp makes connection above 4'- 0"(1.22m).
Concrete pile
Attach rod to piling with 18 ga. stainless steel strap and ¼"x 1¾"(.625 x 4.415cm) stainless steel expansion anchor bolts @ 3'- 0"(.91m) O.C.
¾"x 10'- 0"(1.875 x 30.48cm) Type 316 stainless steel rod.

GROUND ROD DETAIL

Vehicle Repair/ Maintenance Building



Park and recreation areas that need a vehicle repair shop might consider this sleek design planned by the NPS Denver Service Center for Horseshoe Bend National Recreation Area in Alabama.

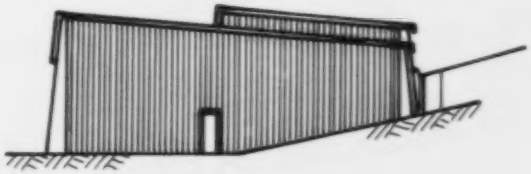
The design includes five garage bays for vehicle maintenance, plus material and tool storage areas, work space, and office. For maximum safety, a flammable materials storage area, with an outside entrance, is separated from the work or painting area by a fire door with automatic closer. The 16′ (4.8 m) modular design can easily be expanded to allow more repair bays or larger storage areas.

Partially built into a hillside, this design could be adapted to a south-facing slope where earth-sheltered construction would give significant energy savings.

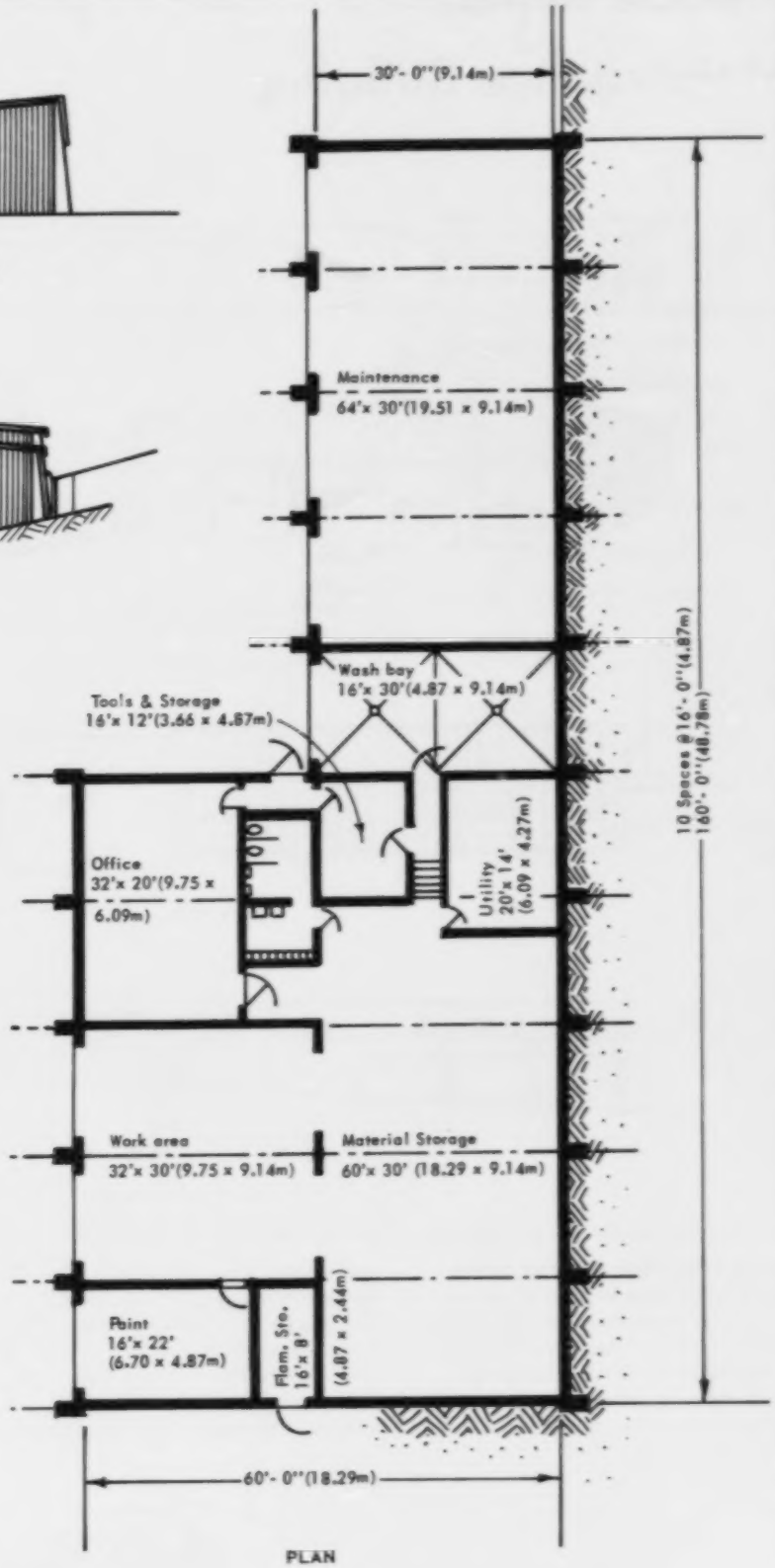
Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

VEHICLE REPAIR/MAINTENANCE BUILDING		Contributed by
Index A-1745	October 1980	Denver Serv. Center NPS - USDI
	Control S-1577-A	

SOUTH ELEVATION



NORTH ELEVATION



PLAN

Steep-Grade Trail Steps

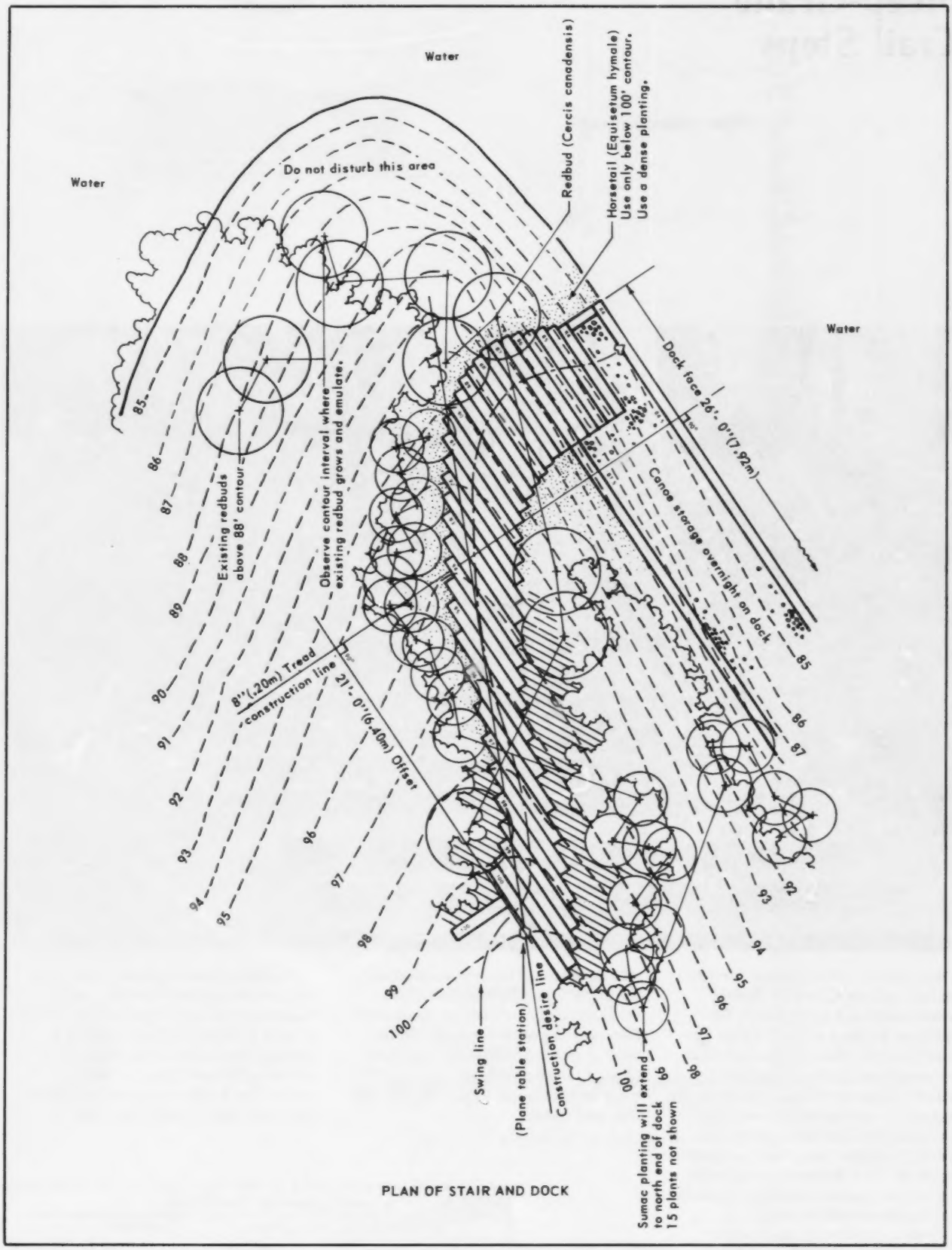
If you're tired of the common "straight up the hill" trail steps, here's a flexible system, submitted by Dennis P. Fehler, landscape architect at Mark Twain National Forest in Missouri. Using difficult topography to an advantage, Fehler's system follows the natural contour of the land and is constructed in a way that minimizes site disturbance. With this system, a designer can predict accurately the visual effect desired for a particular site and can prepare a technical drawing that can be understood easily.

To show graphically the necessary curve for the steps, a "lime line" is drawn on the ground. Spacing of the 6" x 8" (15 x 20 cm) railroad tie steps varies according to the slope. To lessen site disturbance, brackets are used for step footings. Here they are welded to a 36" (90 cm) piece of #5 rebar with stabilizing wedge. Other anchoring methods may be substituted depending upon local soil, topography, and codes.

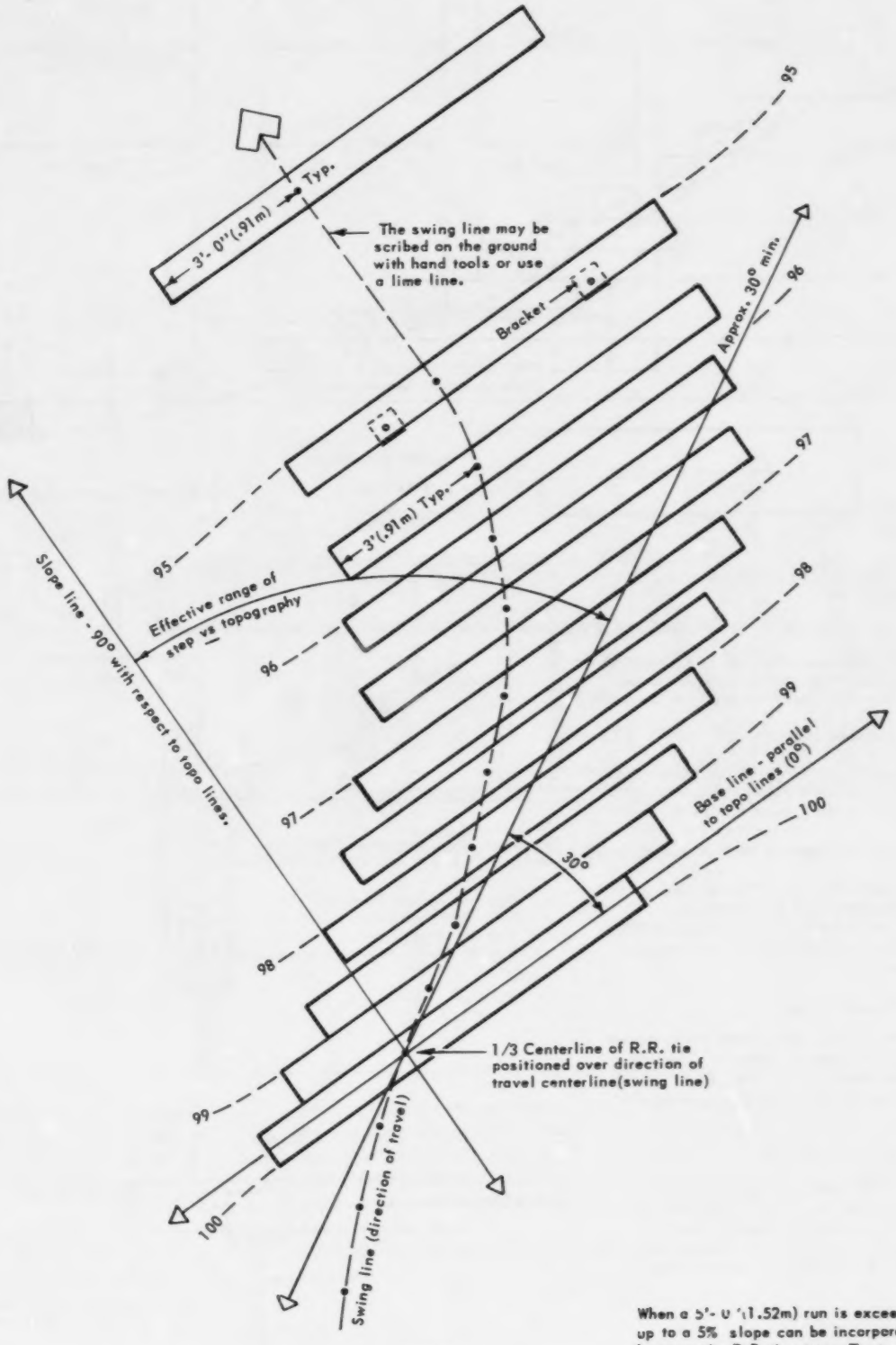
Vegetation can be planted to soften or enhance the edge of the steps, and the vegetation can be manipulated to provide a variety of spatial effects. Erosion is reduced due to the serrated edge effect. If a step is damaged it can be replaced easily. The brackets preserve the correct horizontal and vertical alignment.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

STEEP-GRADE TRAIL STEPS		Contributed by
Index **B-3097**	October 1980	Dennis P. Fehler
	Control F-1617-B	Forest Service, USDA

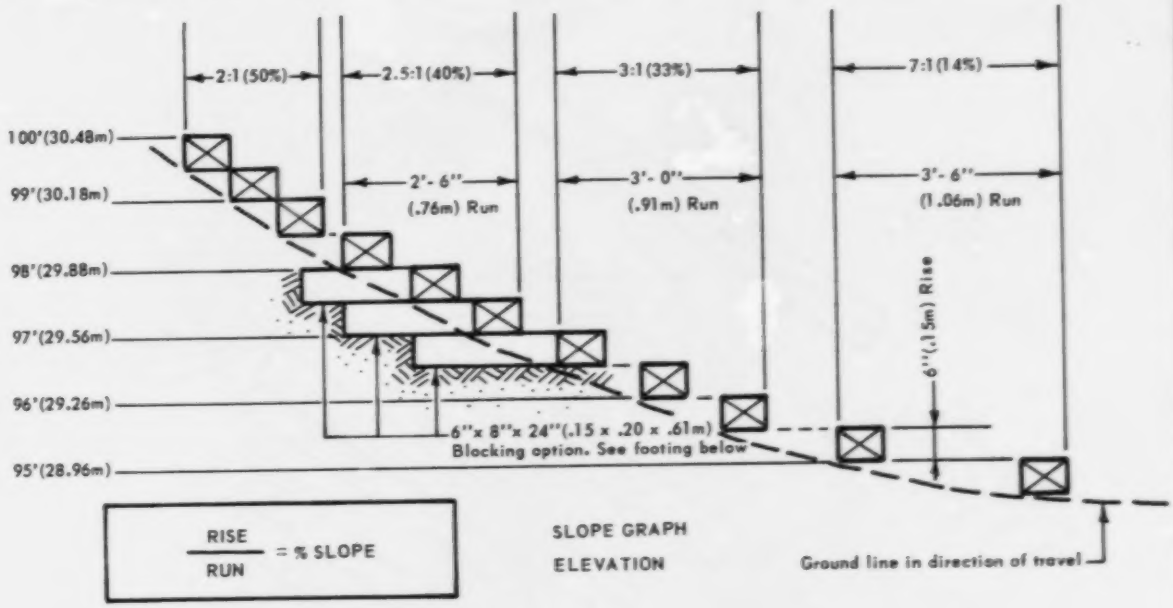


PLAN OF STAIR AND DOCK


3'- 0"(.91m)
Typ.
The swing line may be scribed on the ground with hand tools or use a lime line.
Bracket
Approx. 30° min.
3'(.91m) Typ.
95
96
97
98
99
100
Slope line - 90° with respect to topo lines.
Effective range of step vs topography
Base line - parallel to topo lines (0°)
30°
1/3 Centerline of R.R. tie positioned over direction of travel centerline(swing line)
Swing line (direction of travel)

STEP PLAN

When a 5'- 0 (1.52m) run is exceeded, up to a 5% slope can be incorporated between the R.R tie steps. Test stride for exact step spacing.



CRITERIA (the curvilinear alignment of a geometric system)

Average Adult Stride (18" to 36"or .76 to .91m)

Step arrangement must reflect these design parameters. If in doubt, field test step spacing before construction.(Awkward steps are dangerous.)

Direction of Travel (variable - 30° to 90°)

90° = Perpendicular to the lines of topography.
30° = The approximate minimum diagonal
0° = Parallel to the lines of topography

Step Spacing (dependent on the % of ground slope)

A rise/run ratio of 6" to 12"(.15 x .30m) is optimum. Do not exceed 8"(.20m) rise. Rise 6"(.15m) to 12"(.30m) run = a 2:1 or 50% slope if run exceeds 16"(.40m). Refer to adult stride parameters.

Width and Length of Steps

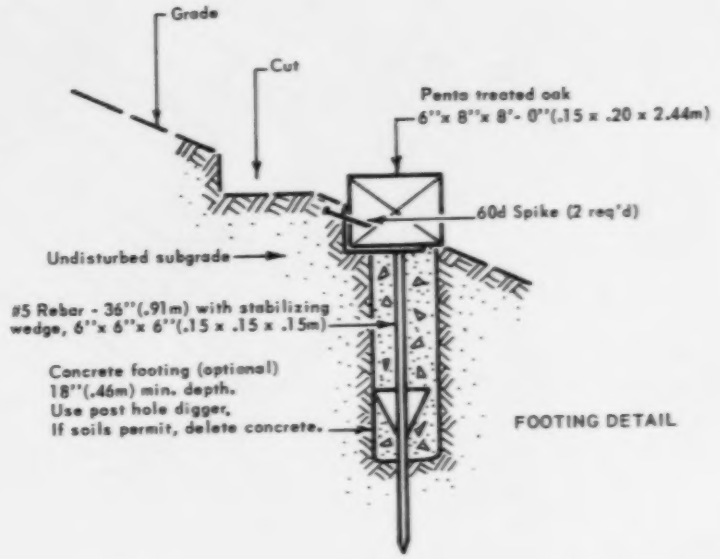
6"x 8"x 8'- 0"(.15 x .20 x 2.44m) Penta treated R.R. ties are a standard. If the 30° direction of travel is exceeded, a longer than 8'- 0"(2.44m) tie may be needed. A 4'- 0"(1.22m) travel way is minimum.

Step Footing

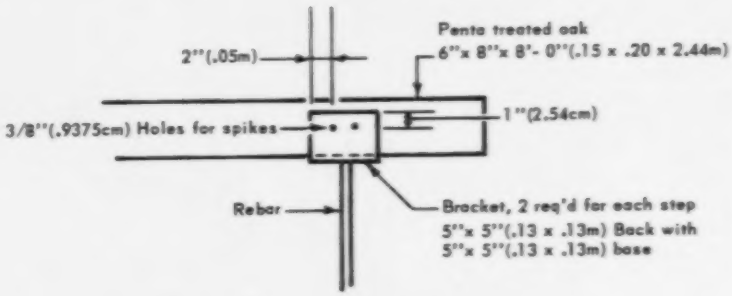
Use "B" series metal footings to reduce site impact. Standard 6"x 8"x 24"(.15 x .20 x .61m) blocking can be used, but requires more site disturbing activities. Use penta treated materials only - Use a 4 lb.(1.80kg) retention or treat to refusal.

Swing Line

An imaginary line of reference(a desire line) determined by topographic and gravitational parameters on which the 1/3 centerline is aligned.

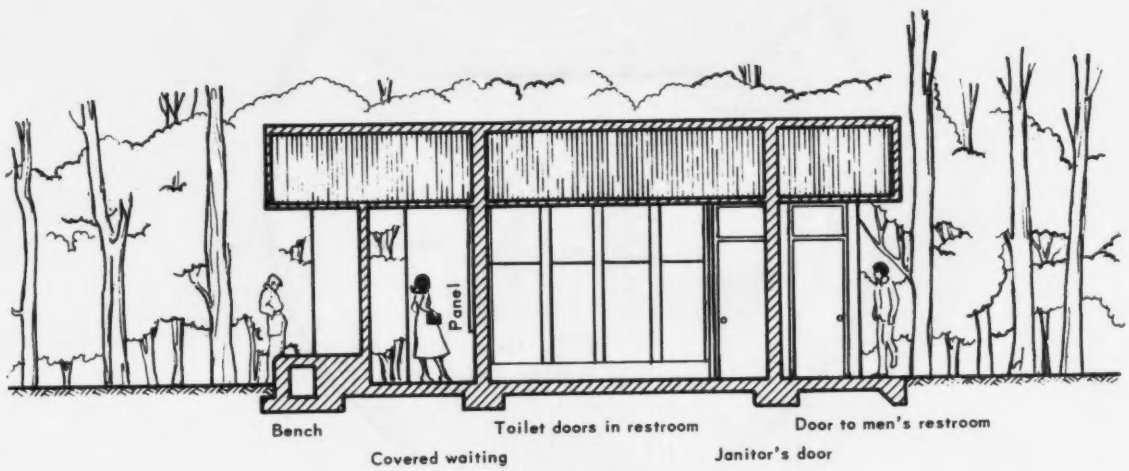

Grade
Cut
Penta treated oak
6"x 8"x 8'- 0"(.15 x .20 x 2.44m)
60d Spike (2 req'd)
Undisturbed subgrade
#5 Rebar - 36"(.91m) with stabilizing wedge, 6"x 6"x 6"(.15 x .15 x .15m)
Concrete footing (optional) 18"(.46m) min. depth. Use post hole digger. If soils permit, delete concrete.

FOOTING DETAIL



BACK VIEW OF FOOTING DETAIL

Round Restroom and Waiting Shelter



SECTION A - A

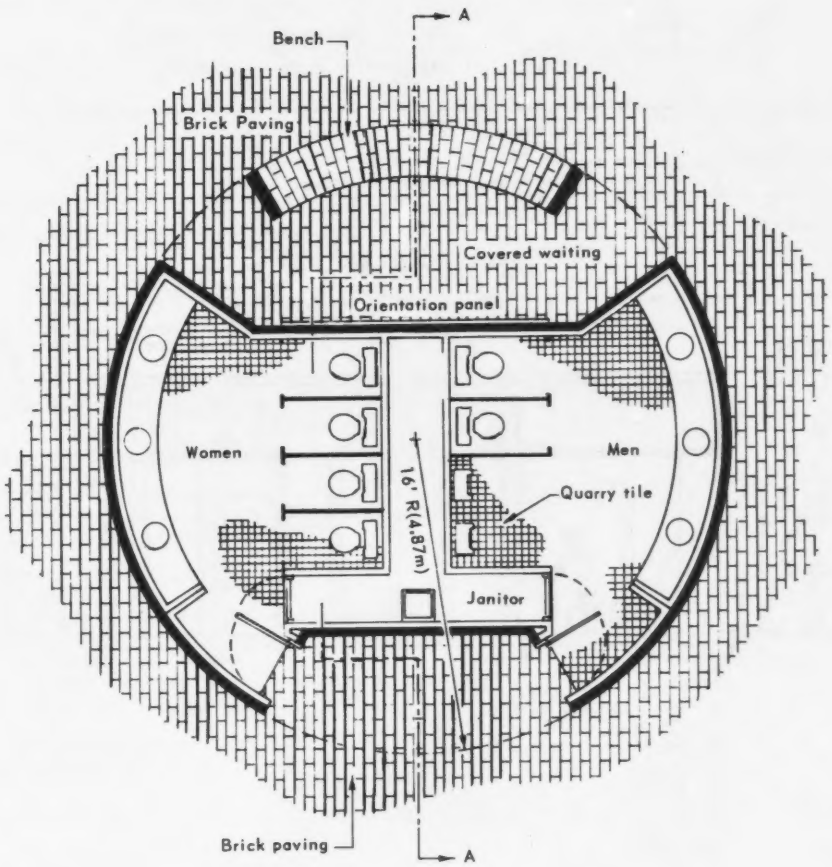
This restroom design, from Morristown National Historical Park in New Jersey, illustrates how an unexpected shape can add interest to the most ordinary structure.

The building includes men's and women's restroom sections with quarry tile floor, and a janitor storage space. Outside the restroom area, within the circle defined by the roof, is a sheltered waiting area with bench and orientation panel. Floor material here consists of brick pavers.

The NPS Denver Service Center created this pleasant design. In adapting this plan to your own site, be sure to provide wheelchair access and compartments for the handicapped, according to ANSI specifications.

Heritage Conservation and Recreation Service in cooperation with the National Recreation and Park Association
DESIGN . . . A publication of Park Practice

RESTROOM AND WAITING SHELTER		Contributed by
Index B-3285	October 1980	Bob A. Lopenske
	Control S-1500-B	DSC - NPS - USDI


A
Bench
Brick Paving
Covered waiting
Orientation panel
Women
Men
16' R(4.87m)
Quarry tile
Janitor
Brick paving
A

PLAN